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An Annotated Systematic, Synonymic and Distributional Checklist of the Pyraloidea of Bulgaria

(Lepidoptera, Crambidae & Pyralidae)

by
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Abstract: The pyraloid fauna (Lepidoptera, Pyralidae & Crambidae) of Bulgaria is reviewed. All known records for the group, from all time to the end of year 2015 within the present day political boundary of the Republic of Bulgaria have been collated to form a single database for research. There are valid records for 389 taxa (386 species plus three additional subspecies); these comprise 165 within the Pyralidae (164 species plus 1 subspecies) and 224 taxa within the Crambidae (222 species plus 2 subspecies). 16 taxa mentioned in the literature are formally excluded from the Bulgarian fauna; these are as follows:

Aphomia (= *Melissoblaptes) unicolor* (STAUDINGER, 1880)	Incorrect identification
Aphomia (=*Corcyra*) *cephalonica* (STAINTON, 1866)	Recorded in error
Pempelia brephiella (STAUDINGER, 1879)	Incorrect identification
Phycita pedisignella (RAGONOT, 1887)	Incorrect identification
Acrobasis glaucella STAUDINGER, 1859	Incorrect identification
Mussidia nigrivenella RAGONOT, 1888	Incorrect identification
Homoeosoma calcella RAGONOT, 1887	Insufficient evidence
Cadra abstersella (ZELLER, 1847)	Insufficient evidence
Synaphe lorquinalis (GUENÉE, 1854)	Incorrect identification
Aglossa asiatica ERSCHOLT, 1872	Insufficient evidence
Crambus palustrella RAGONOT, 1876	Incorrect identification
Agriphila geniculea (HAWORTH, [1811])]	Incorrect identification
Catoptria pyramidella (TREITSCHKE, 1832)	Insufficient evidence
Catoptria laevigatella (LEDERER, 1870)	Incorrect identification
Eurrhypis guttulalis (HERRICH-SCHÄFFER, 1848)	Insufficient evidence
Mecyna lutealis (DUPONCHEL, 1833)	Incorrect identification

All taxa are discussed and a selection of important habitats are illustrated in colour. Distribution maps are presented for most of the species. Colour images of set specimens are presented for most of the Pyralidae. The following taxonomic changes are introduced in this paper:

Moitrelia placidella (ZERNY, 1929) **comb. nov.**
  = *Pempeliella alibotuschella* (DRENOWSKI, [1932] 1931) **syn. nov.**
  = *Delplanqueia nobilella* sensu LERAUT, 2014 partim, nec *nobilella* RAGONOT, 1887
Catastia marginea ([DENIS & SCHIFFERMÜLLER], 1775)
  = *Catastia acraspedella* STAUDINGER, 1879 **syn. nov.**
Bradyrrhoa imperialella (RAGONOT, 1887) **comb. nov.**
  = *Phycita imperialella* (RAGONOT, 1887) sensu LERAUT, 2014 **syn. nov.**
  = *Sciota imperialella* (RAGONOT, 1887) **syn. nov.**
  = *Nephopterix imperialella* RAGONOT, 1887 (original combination) **syn. nov.**
*Ancylosis albidella (*RAGONOT, 1888) **stat. rev. bona sp.**
Metacrambus carectellus (ZELLER, 1847) **bon. comb.**
  = *Mesocrambus carectellus* (ZELLER, 1847) **stat. rev.**

Резюме: Ревизирана е фауната на огневките (Lepidoptera, Pyralidae & Crambidae). Всички данни до края на 2015 година, известни за тази група в рамките на сегашните политически граници на Република България, са обобщени в база данни, която е основа за бъдещи научни изследвания. Представени са валидни записи за 389 таксона (386 вида плюс три подвида); тук се включват 165 представителя на Pyralidae (164 вида плюс 1 подвид) и 224 на Crambidae (222 вида плюс 2 подвида). 16 таксона, известни от литературата, са изключени от българската фауна; това са:

Aphomia (= *Melissoblaptes) unicolor* (STAUDINGER, 1880)	неправилна идентификация
Aphomia (=*Corcyra*) *cephalonica* (STAINTON, 1866)	грешно съобщен
Pempelia brephiella (STAUDINGER, 1879)	неправилна идентификация
Phycita pedisignella (RAGONOT, 1887)	неправилна идентификация
Acrobasis glaucella STAUDINGER, 1859	неправилна идентификация
Mussidia nigrivenella RAGONOT, 1888	неправилна идентификация
Homoeosoma calcella RAGONOT, 1887	достатъчно доказателства
Cadra abstersella (ZELLER, 1847)	достатъчно доказателства
Synaphe lorquinalis (GUENÉE, 1854)	неправилна идентификация

Aglossa asiatica Erscholt, 1872	достатъчно доказателства
Crambus palustrella Ragonot, 1876	неправилна идентификация
Agriphila geniculea (Haworth, [1811])]	неправилна идентификация
Catoptria pyramidella (Treitschke, 1832)	достатъчно доказателства
Catoptria laevigatella (Lederer, 1870)	неправилна идентификация
Eurrhypis guttulalis (Herrich-Schäffer, 1848)	достатъчно доказателства
Mecyna lutealis (Duponchel, 1833)	неправилна идентификация

Всички видове са коментирани, някои важни местообитания са илюстрирани с цветни снимки. Дадени са карти на разпространението на по-голяма част от видовете. Повечето представители на Pyralidae са илюстрирани с цветни снимки на препарирани екземпляри. В настоящата работа са направени следните таксономични промени:

Moitrelia placidella (Zerny, 1929) **comb. nov.**
= *Pempeliella alibotuschella* (Drenowski, [1932] 1931) **syn. nov.**
= *Delplanqueia nobilella* sensu Leraut, 2014 partim, nec *nobilella* Ragonot, 1887
Catastia marginea ([Denis & Schiffermüller], 1775)
= *Catastia acraspedella* Staudinger, 1879 **syn. nov.**
Bradyrrhoa imperialella (Ragonot, 1887) **comb. nov.**
= *Phycita imperialella* (Ragonot, 1887) sensu Leraut, 2014 **syn. nov.**
= *Sciota imperialella* (Ragonot, 1887) **syn. nov.**
= *Nephopterix imperialella* Ragonot, 1887 (оригинална комбинация) **syn. nov.**
*Ancylosis albidella (*Ragonot, 1888) **stat. rev. bona sp.**
Metacrambus carectellus (Zeller, 1847) **bon. comb.**
= *Mesocrambus carectellus* (Zeller, 1847) **stat. rev.**

Zussamenfassung: Die Pyraliden-Fauna (Lepidoptera, Crambidae & Pyralidae) Bulgariens wird einer genauen Überprüfung unterzogen. Alle verfügbaren und zugänglichen Angaben über die Arten dieser Gruppe aus dem bulgarischen Staatsgebiet, von den Anfängen bis zur Gegenwart, wurden zusammengetragen, um eine zusammenfassende Datenbank fuer zukünftige Forschungen zu erstellen. Diese neu erstellte Liste umfasst insgesamt 389 Taxa (386 Arten und drei Unterarten), davon entfallen auf die Pyralidae 165 Taxa (164 Arten und eine Unterart) und auf die Crambidae 224 Taxa (222 Arten und zwei Unterarten). 16 Taxa, die in der Literatur über die bulgarische Lepidoptera-Fauna angeführt wurden, werden formell ausgescholssen, da es sich um Fehlbestimmungen, unsichere Angaben oder um einen Irrtum handelt. Es sind dies folgende Arten:

Aphomia (= *Melissoblaptes) unicolor* (Staudinger, 1880)	falsche Identifizierung
Aphomia (=*Corcyra*) *cephalonica* (Stainton, 1866)	irrtuemlich erwaehnt
Pempelia brephiella (Staudinger, 1879)	falsche Identifizierung
Phycita pedisignella (Ragonot, 1887)	falsche Identifizierung
Acrobasis glaucella Staudinger, 1859	falsche Identifizierung
Mussidia nigrivenella Ragonot, 1888	falsche Identifizierung
Homoeosoma calcella Ragonot, 1887	unzureichender Nachweis
Cadra abstersella (Zeller, 1847)	unzureichender Nachweis
Synaphe lorquinalis (Guenée, 1854)	falsche Identifizierung
Aglossa asiatica Erscholt, 1872	unzureichender Nachweis
Crambus palustrella Ragonot, 1876	falsche Identifizierung
Agriphila geniculea (Haworth, [1811])]	falsche Identifizierung
Catoptria pyramidella (Treitschke, 1832)	unzureichender Nachweis
Catoptria laevigatella (Lederer, 1870)	falsche Identifizierung
Eurrhypis guttulalis (Herrich-Schäffer, 1848)	unzureichender Nachweis
Mecyna lutealis (Duponchel, 1833)	falsche Identifizierung

Alle Taxa werden eingehend behandelt. Die meisten der Arten werden farbig abgebildet, ebenso wird von den meisten Arten deren Vorkommen in Bulgarien durch Verbreitungskarten veranschaulicht. Farbige Abbildungen typischer Lebensräume werden hinzugefügt. Folgende taxonomische Änderungen erfolgen in dieser Arbeit:

Moitrelia placidella (Zerny, 1929) **comb. nov.**
= *Pempeliella alibotuschella* (Drenowski, [1932] 1931) **syn. nov.**
= *Delplanqueia nobilella* sensu Leraut, 2014 partim, nec *nobilella* Ragonot, 1887
Catastia marginea ([denis & Schiffermüller], 1775)
= *Catastia acraspedella* Staudinger, 1879 **syn. nov.**
Bradyrrhoa imperialella (Ragonot, 1887) **comb. nov.**
= *Phycita imperialella* (Ragonot, 1887) sensu Leraut, 2014 **syn. nov.**
= *Sciota imperialella* (Ragonot, 1887) **syn. nov.**
= *Nephopterix imperialella* Ragonot, 1887 (original combination) **syn. nov.**
*Ancylosis albidella (*Ragonot, 1888) **stat. rev.**
Metacrambus carectellus (Zeller, 1847) **bon. comb.**
= *Mesocrambus carectellus* (Zeller, 1847) **stat. rev.**

Introduction

Situated at the extreme south-east corner of Europe, only the relatively small area of European Turkey separates Bulgaria from Asia Minor; this places Bulgaria on the "front line" in terms of invasions of animal and plant species from the latter area, be this via immigration or as a consequence of potentially more significant movements evolving from global climate change or other factors. Indeed, some changes have already been detected in other lepidopteran families. The North American noctuid moth *Acontia candefacta* (HÜBNER, [1831]), which was introduced to Southern Russia in 1967 as a biological control agent and which is now extending its range westwards, reached Bulgaria in 2009 (BESHKOV, 2010) when, apart from some records in the Ukraine, it was new to Europe. Similarly, the spread into Europe of the drepanid *Cilix asiatica* (O. BANG-HAAS, 1907) is being monitored as are, doubtless, other species. The fact that *Acontia candefacta* was a new arrival could only be known because a baseline work on the Noctuidae of Bulgaria already existed (BESHKOV, 2000). Clearly, the requirement for a baseline of information - expressed simply, a list of species already present - is of paramount importance. In addition, some indication of the existing geographical spread of species already established across the country would also be of benefit in the interpretation of new discoveries, as too would be an indication of their numerical abundance where they are found.

Within Bulgaria the Noctuidae *sensu* lato are well-known (BESHKOV, 2000). A second group, the Tortricidae, is well-known though currently awaiting publication (ZLATKOV, pers. comm.), but aside from these two families information on the Lepidoptera of Bulgaria is sparse. This present paper presents, therefore, the results of an investigation of the Pyraloidea (families Pyralidae and Crambidae) within Bulgaria with the aim of plugging this significant gap in knowledge. Although there have been some studies of individual groups, as far as I am aware, no complete listing of the Pyraloidea of Bulgaria has previously been attempted.

Definition of Bulgaria

The region including present day Bulgaria has been under the control of various "empires" throughout the course of history and there have been many boundary changes. It is appropriate to highlight any matters that may affect data on Lepidoptera; three regions of the country are affected, as follows:

North-east Bulgaria versus Romania

Parts of the Silistra and Dobrich Provinces (Fig. 1) have variously been included in both Bulgaria and Romania; the present boundary was established during World War II. In terms of Lepidoptera, this is important, in particular, when interpreting the records made by both POPESCU-GORJ and CARADJA – both were active in the "Silver Coast" area which at that time was a part of Romania.

South Bulgaria versus East Rumelia

In one of the most important early summaries of Bulgarian Pyraloidea, REBEL (1903) refers to material from Bulgaria and East Rumelia ("*Ostrumeliens*"). The name Rumelia (Turkish: Rumeli = Roman land) has encompassed different areas at different times. It originally referred to the European part of the Ottoman Empire; in the 11th & 12th centuries "East Rumelia" (originating as the east of the Roman Empire) was used to refer to Anatolia. Later, the name was specifically used to refer to a province consisting of central Albania and Western Macedonia. After the administrative reform in the 1870s this ceased to exist as a political subdivision, but in 1878 Eastern Rumelia was created as an autonomous province within the Ottoman Empire; this affected parts of present day Bulgaria and Turkey, with the (now) Bulgarian town of Plovdiv as its Capital. In a peaceful revolution on 6th September 1885, it was united with Bulgaria. Today the term "East Rumelia" is used to refer to parts of European Turkey, specifically the provinces of Edirne, Kirklareli and Tekirdag and the eastern part of the province of Istanbul. Data from REBEL (1903) and other works has been carefully sifted to ensure that only records from present day Bulgaria are included here.

Fig. 1: Current political boundary of Bulgaria showing the 28 "Provinces" (области = oblasti) created in 1999.

South-west Bulgaria versus Macedonia

The term Macedonia is one that confuses many, since it refers both to a separate state and to a broader area affected by several countries. The present-day Republic of Macedonia was declared independent from the former Republic of Yugoslavia in late 1991 as the influence of communism declined throughout Eastern Europe. The boundary of the wider Macedonian region has changed considerably over time and currently incorporates parts of six Balkan countries, namely Greece, the Republic of Macedonia, Bulgaria, Albania, Serbia and Kosovo. In terms of the Lepidoptera, it is of importance to be aware that significant portions of the south-west area of present day Bulgaria, including places such as "Alibotush" (now called Slavyanka), the Pirin and Rila Mountains, were formerly considered part of Macedonia rather than Bulgaria and this is reflected in the literature of the nineteenth century in particular.

This present work is concerned with the modern area of the Republic of Bulgaria at 1st January 2016, which is indicated in Fig. 1. This territory covers 110,994 square kilometres (42,855 square miles) and ranks as the 16th-largest country in Europe. The eastern boundary is made by the 378 kilometres (235 miles) coastline of the Black Sea, extending from Romania in the north to Turkey in the south. For the most part, the River Danube forms the physical boundary that separates Bulgaria from Romania to the north. The exception is in the eastern area, where the river parts from the national boundary about two-thirds of the way eastwards across the Silistra Province so that the eastern section of this and all of Dobrich Province are physically continuous with terrestrial habitats in Romania. The southern boundary is made by Greece in the west and European Turkey in the east. In the west, Serbia lies in the northern position and Macedonia south of here.

Biogeography

In entomological terms, Bulgaria might be defined as being "dorso-ventrally compressed" – being longer from west to east than it is from north to south. Most features of physical geography run, very broadly, from west to east and examining these from the north to the south, these are:

- the River Danube and its associated flood plain;
- the more or less central mountain range that is the Stara Planina – the Balkan Mountains *sensu stricto*;
- the Upper Thracian Plain, which extends east to the Black Sea coast;
- the Southern Uplands, extending from the Macedonian border eastwards, via the Pirin and Rila mountain ranges in the west and the Rhodopes range in the east to the lower lying Strandzha hills towards Turkey and the southern coast.

These are all physically connected by a more or less north-south oriented mountain range along the western boundary. This western mountainous region provides physical connectivity across Serbia, Bosnia-Herzegovina and Slovenia to the Austrian Alps as well as northwards to the Middle Carpathian range in Transylvania. This continuity of upland habitat is indicated in Fig. 2; it has great bearing on the distribution of several species of pyraloid moths in the eastern half of Europe.

Fig. 2: European continuity of mountain ranges. Note in particular the sigmoid nature of the Carpathian Mountains that form, at their most southern end, the Stara Planina within Bulgaria and enclose the "Great Hungarian Plain" to the west and the flatlands of Romania to the east. Source: *https://usatunofficial.files.wordpress.com/2014/06/shutterstock_136767626.jpg*

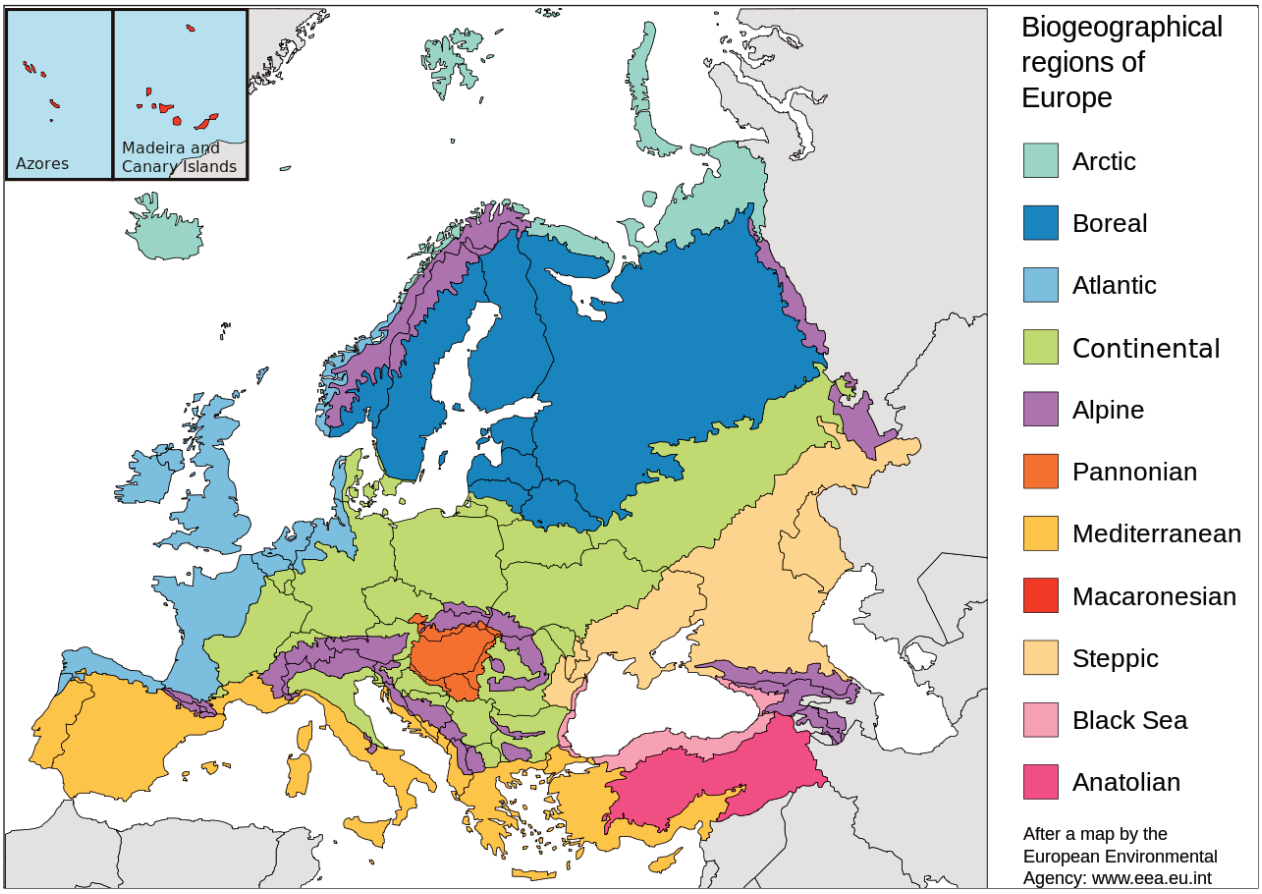


Fig. 3: Biogeographical regions of Europe. Map by Júlio Reis, European Environmental Agency. Licensed under CC BY-SA 3.0 via Wikimedia Commons (http://commons.wikimedia.org/wiki/File:Europe_biogeography_countries.svg#/media/File:Europe_biogeography_countries.svg)

Unsurprisingly, the mountains apply an alpine influence and this effect is transferred down the ecological chain to the lepidopteran fauna. The Upper Thracian Plain, on the other hand, acts as a "sun trap" where the ambient temperature is significantly raised in the summer months and here an altogether different climate influences the entomofauna. This area represents Bulgaria's lowest and most fertile region and possibly the least entomologically diverse; the greater part of the entomological interest of the country is, without question, in the largely uncultivated upland areas. The capital city, Sofia, sits near the western end of the Thracian Plain, more or less midway between the northern and southern national boundaries. It is, very approximately, at the same latitude as the northern tip of Corsica and the line of the Pyrenean Mountains between France and Spain. A third, maritime influence is exerted in the east by the Black Sea; together these factors divide Bulgaria into the three distinct geographical regions of Alpine, Black Sea and Continental (Fig. 3). Some authorities also assert that a Steppic region can also be defined, by virtue of the extension of that biotope southwards from Romania in the eastern area. Certainly, Steppic grassland is evident in some places, notably at Cape Kaliakra (although part of this area has been severely damaged by the installation of a wind farm).

Lepidoptera habitats

The physical geography and climatic influences combine to create a wide range of habitat types within Bulgaria. A complete review of these is better placed in the future when a significantly greater amount of data will, hopefully, be available and permit a meaningful analysis of the habitats and their overall contribution to moth conservation. Nevertheless, it is already apparent that the conservation value of some areas are of the country are significant at the European level. Prime amongst these must be the Kresna Gorge carved into the montane landscape of granite, crystalline schist and gneiss by the Struma River. Here, the Continental and Alpine influences combine with the Mediterranean factors to great a "biodiversity hotspot" that is of profound international importance for a huge range of both animal and plant groups. At the time of writing, in March 2016, it is threatened by construction of a motorway. A brief pictorial review of some of the more interesting or diverse sites for Pyralidae and Crambidae is presented later in this review. This also serves the purpose of placing on permanent record the condition of some key localities at 2016 so that the images may be compared with others yet to be obtained in the future.

Historical studies of Bulgarian Pyraloidea

A brief history of Pyraloidea recording in Bulgaria

The earliest recorded collecting of Pyraloidea in the area that is now referred to as Bulgaria appears to have been undertaken by the husband and wife team of Johann and Ludmilla Haberhauer in 1862 and 1863 (Plate 1). The Haberhauers resided, at least for

some years, at Sliven where they collected Lepidoptera extensively and during the years 1862 and 1863 they also collected in the Varna region. Much of their data was written up by JULIUS LEDERER (1821-1870) whose paper "Verzeichnis der von Herrn. JOHANN und Frau LUDMILLA HABERHAUER 1861 und 1862 bei Varna in Bulgarien und Sliven in Rumelien gesammelten Lepidopteren" [Directory of the Lepidoptera collected by Mr JOHANN and his wife LUDMILLA HABERHAUER in 1861 and in 1862 near Varna in Bulgaria and Sliven in Rumelia] is the first major work which included the country's pyralid moths; a great many of the earliest species records for Bulgaria are included that paper (LEDERER, 1863). LEDERER was an Austrian entomologist lepidopterist who travelled widely to collect Lepidoptera in Andalusia, Turkey, the Taurus Mountains and the Balkans, as well as elsewhere.

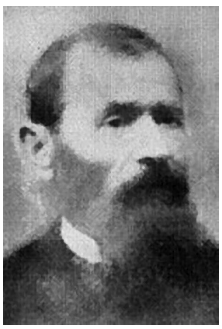


Plate 1: JOHANN HABERHAUER (1828-1902)

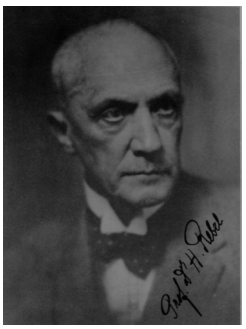


Plate 2: HANS REBEL (1861-1940)

The HABERHAUERS remained active for many years and their data form a significant part of the first comprehensive list of moths from the region by HANS REBEL (Plate 2) whose "Studien über die Lepidopterenfauna der Balkanländer. I. Bulgarien und Ostrumelien" [Studies on the Lepidopteran fauna of the Balkans – Bulgaria and East Rumelia] includes 143 species of Pyraloidea (REBEL, 1903). An Austrian lepidopterist who had first trained as a lawyer, REBEL was Keeper of the Lepidoptera collection of the Naturhistorisches Museum in Vienna, 1897 to 1932, Director of the Department of Zoology from 1923 and Director General from 1925. He published more than 300 publications on Lepidoptera.

In the early years of the twentieth century several different authors generated reports on the Lepidoptera of various different regions of Bulgaria and several of these included the Pyraloidea. IVAN BURESCH (director of the National Museum of Natural History, Sofia, from 1914 to 1959, (Plate 3), listed 63 species for the Sofia area (BURESCH, 1908), whilst PETER TSCHORBADJIEV (1882-1946: Plate 4) covered Burgas (TSCHORBADJIEV, 1915) and Sliven (TSCHORBADJIEV, 1915) with 109 and 145 species, respectively.

Plate 3: IVAN BURESCH (1885-1980)

Plate 4: PETER TSCHORBADJIEV (1882-1946)

Plate 5: Tsar BORIS III of Bulgaria (1894-1943)

Bulgaria's royalty also dabbled in the study of the Lepidoptera. BORIS KLEMENS ROBERT MARIA PIUS LUDWIG STANISLAUS XAVER (1894 -1943), came to the Bulgarian throne as BORIS III, Tsar of Bulgaria, in 1918 upon the abdication of his father, FERDINAND I, following the defeat of the Kingdom of Bulgaria during World War I (Plate 5). King BORIS was not a prolific entomologist, though one imagines that had he not one or two other important tasks to perform he might have devoted more time to insects. There are specimens in the national museum in Sophia that bear his label, including several Pyralids and he seems to have been active sporadically in the early part of the twentieth century. Also in the same museum is Pyraloidea material collected by DELCHO ILITSCHEV

(1885-1925), who was active in the period from 1910 to 1925 (Plate 6), mainly in the south-west area that was at that time part of Macedonia. On 14 April 1925 he was travelling in that region with King BORIS when an anarchist group attacked the Royal cavalcade in the Arabakonak Pass. ILITSCHEV was shot and killed; the King survived.

Plate 6: DELCHO ILITSCHEV (1885-1925)

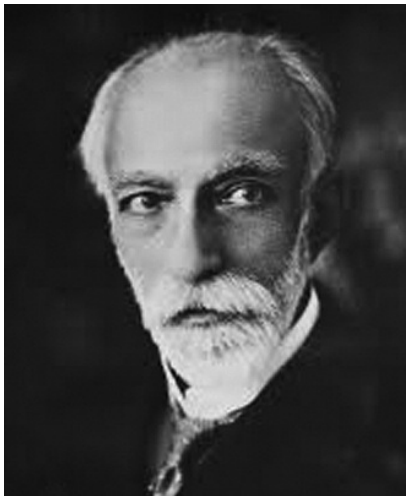


Plate 7: Prince ARISTIDE CARADJA of Romania (1861-1955)

ALEXANDER KIRILOW DRENOWSKI (1879-1967) contributed 77 papers on the Lepidoptera of Bulgaria, including for the Sofia area (DRENOWSKI, 1902), Central Balkan (DRENOWSKI, 1912), the south-west, as "Bulgarien und Mazedonien" (DRENOWSKI, 1923 and the Central Rhodopes (DRENOWSKI, 1924-1925), all of which contain important data on the Pyraloidea.

For the east of the country Prince ARISTIDE CARADJA (1861-1955: Plate 7) listed 32 species for the "Silver Coast" area of Balchik, which at that date was Romanian territory CARADJA (1930). There was also extensive collecting in this area by ADRIANO OSTROGOVICH, whose material is preserved in the "Grigore Antipa" National Museum of Natural History in Romania. This material was examined in the review by POPESCU-GORJ (1964). AURELIAN POPESCU-GORJ, 1914-1977, (Plate 8), was Head of the Department of Entomology of the Romanian National Museum of Natural History "Grigore Antipa". A resident of the Dobragea region of Romania, he collected Lepidoptera in that region on both sides of the current national boundary.

Plate 8: AURELIAN POPESCU-GORJ 1914-1977

For the south-west mountain region, KRUSTYU TULESHKOV (1901-1976) reports (TULESHKOV, 1929), 15 species on a trip to the Alibotush Mountain (now called Slavyanka Mountain) in 1929 and ROESLER & ZÜLLICH (1934) recorded 35 species on a collecting trip to "Bulgarian Macedonia" in 1933. Further east, TULESHKOV (1930) reports 55 species from the Tarnovo (= Veliko Tarnovo) area in 1928 and 1929 and in the West Balkan Mountains (= western Stara Planina) during 1931 he reports another twelve (TULESHKOV, 1932).

The 1970s were fairly productive as far as Pyraloidea records are concerned. ALEXANDER SLIVOV (born 1936) lists (SLIVOV, 1970), 69 species for the Iskar Gorge whilst TULESHKOV & SLIVOV (1975) listed 107 species for the Rhodopes Mountains; later, BESHKOV & LANGOUROV (2004) list 91 species for the Eastern Rhodopes range only. The work by JOSEF SOFFNER (1967) is an important document, since this seems to be the source of many unattributed records given in the summaries produced later by JULIUS GANEV (1947-2015). This latter author (Plate 9), produced a series of brief summaries over a ten year period, covering Crambidae (GANEV, 1978), Nymphulinae (GANEV, 1982), Galleriinae (GANEV, 1983), Odontiinae (GANEV, 1985), Schoenobiinae (GANEV, 1986), Scopariinae (GANEV, 1986a), Cybalomiinae, Evergestinae, Pyralinae and Peoriinae (GANEV, 1986b) and finally Pyraustinae, Euclastinae and Acentropinae (GANEV, 1988). Together, these included 215 species of Pyraloidea; the Phycitinae are conspicuous by their absence. Unfortunately, these papers are scattered in the literature and are often difficult to access as well as being published in three different languages (German, English and Bulgarian). The information that they contain is undoubtedly correct, but is minimal as they were only designed to be summaries of existing knowledge. This has presented a problem for the present author,

since GANEV very often simply listed the localities of which he was aware. Some of these data may well have been represented by specimens that GANEV either saw or collected himself, but details of capture date, precise locality, numbers, sexes and name of collector are usually absent and there is almost never an indication of whether or not a specimen was determined from genitalia examination. This has led to the frustrating situation of not knowing, for some species, even in which year the record was made; the date of the publication merely provides, by default, the latest possible year.

A careful examination of the material in Sofia Museum, where GANEV was employed at the time, has failed to reveal more than a handful of voucher specimens that can be related to published data and it is of some interest, also, that there are many other, rather elderly specimens in the Sofia Museum that appear to have been overlooked by GANEV when he was preparing his lists for publication. He lost interest in Lepidoptera during 1987, in which year his last publication on Lepidoptera appeared and sold his own collection to Rome Museum. Subsequently, he developed an interest in the history and archaeology of Asia Minor. He died during 2015 in Sofia.

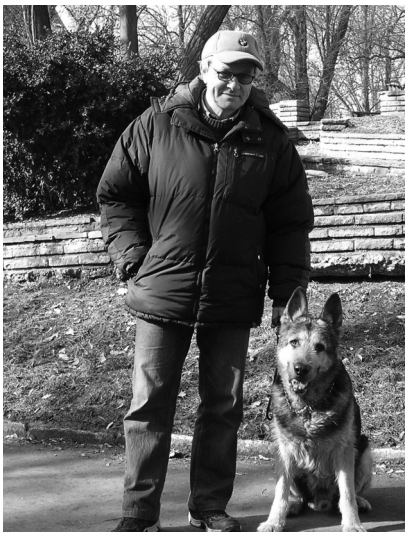


Plate 9: JULIUS GANEV (1947-2015)

A significant number of taxonomic changes have taken place since GANEV's summary papers were produced and several new species have been added to the Bulgarian fauna, so that interpretation by anyone lacking a thorough working knowledge of the group is likely to be difficult. Taxonomy, and simple inventory, has been the prime emphasis throughout the period discussed above, but whilst there can be no doubt that a great many taxonomic issues remain outstanding, modern collecting of Lepidoptera has focussed rather more intensely than in the past upon the practical conservation applications of the data obtained. In a period of human history when we appear to be in the midst of something of a global biodiversity crisis, a comprehensive inventory of species is one of the greatest challenges facing taxonomists (HUEMER et al., 2012); a spin-off from this is that provided collected material is properly preserved and curated it will also be available for equally important taxonomic studies. The best of both worlds! For Bulgaria, emphasis in recent survey has been on the immensely important national parks and other wild areas. However, whilst the Lepidoptera are included in reports for the Rila National Park (SAKALIAN, 2000), the Central Balkan National Park (HUBENOV, 2000), Kresna Gorge (BESHKOV, 2001) and the Rhodopes Mountains (BESHKOV & LANGOUROV, 2004), amongst others, very few Pyraloidea are listed, reflecting lack of expertise amongst the country's otherwise excellent entomological community.

The present-day Bulgarian Pyraloid fauna

Purpose of the present survey

This present work collates all data available to the author up to 31st December 2015 on Pyralidae and Crambidae (Lepidoptera) from within the boundary of the present-day Republic of Bulgaria. A total of 389 pyraloid taxa is listed, of which 3 are subspecies, so that the current list of species accepted on the Bulgarian fauna is 386. These divide into 224 crambid taxa (222 species plus 2 additional subspecies) and 164 pyralid taxa (plus one additional subspecies). The data is interpreted, as far as practical and the distribution of each species within the country is discussed and also presented in the form of a map. For convenience, these distribution maps are collated to form a single section within this review.

Within the Pyraloidea, the Crambidae are, now, a relatively well-understood family, but some subfamilies of the Pyralidae are very poorly known or understood – not just in Bulgaria, but throughout the world. Work on Phycitinae in particular has presented some problems. Illustrations of many adult Phycitinae are rare or absent in the literature and in far too many instances are incorrectly named. Useable drawings of the genital apparatus are even more scarce and when drawings do exist they are sometimes more "artistic interpretation" than factual presentation. Anyone not employed within a museum, or who otherwise has access to an extensive collection of this group, has little chance of naming specimens. With this in mind, colour photographs of most Bulgarian species of Pyralinae are presented as a simple aid to recognition, though it is emphasised that even some of the apparently distinctive taxa ought to be confirmed by genitalia examination.

Sources of data for the present survey
In this present inventory, I have attempted to include all available data on the Pyraloidea of Bulgaria that I have been able to find. These sources are:

The European checklist of Lepidoptera by KARSHOLT & RAZOWSKI (1996) provided a base list upon which to start work, since those authors have, most obligingly, already "trawled" the literature for data. Of course, that work did not include any supporting data for listed species and for this it has been necessary to "go to source" which, in most cases, implies literature references.

The entomological literature cited in the text and listed at the end of this paper. I have included all the data given in the publications listed, but it is clear that when specimens are examined some different published reports are shown to relate to the same individual insects. This is discussed more fully below.

The collection of Pyraloidea in the National Museum of Natural History, Sofia (NMNHS), which I was most kindly permitted to critically examine. This process produced several surprises and a number of species not already known from Bulgaria were found – in spite of being hidden within the museum for over 70 years.

The collections of the Institute of Zoology, which include material accumulated by SLIVOV. These are in the Institute of Biodiversity and Ecosystem Research (IBER) in Sofia and have also been critically examined by me.

The collection at Sofia University "St. Kliment Ohridski", Faculty of Biology – mostly material collected by Dr BOYAN ZLATKOV and Ognyan SIVILOV. This, and the last two items in this list, were examined in England, where dissections could be performed at leisure.

The personal collection of Dr STOYAN BESHKOV – a specialist on Noctuidae, whose small collection of Pyraloidea has also provided valuable data.

The personal collection of Dr BOYAN ZLATKOV – a specialist on Tortricidae. This material produced some species new to the Bulgarian fauna.

The collection of BARRY GOATER (Hampshire, UK), now housed at ZMUC. GOATER, an established expert on the Pyraloidea (see, e.g., GOATER, 1986), collected Lepidoptera in Bulgaria in the company of Stoyan BESHKOV in the autumn of 1995 and 1996.

Data from collecting trips by CSABA SZABÓKY (Budapest, Hungary) during 1986 in the area around Kresna and elsewhere.

Data from collecting trips by FRANTISEK SLAMKA (Bratislava, Slovakia) and from his extensive research of European museum collections of Pyraloidea.

Data from collecting trips by OLE KARSHOLT, Copenhagen, Denmark (ZMUC).

Data from collecting trips by BENNY STEEN LARSEN (Denmark) from 2007 to present, particularly in the northern coastal area around Kavarna and Kaliakra.

Data from collecting trips by NILS RYRHOLM (Sweden).

Data from collecting trips by NICK GREATOREX-DAVIES (England), who has been recording moths and other insects since 2003 whilst leading spring and summer butterfly and moth tours for the British-Bulgarian society. Both day and night-flying species have been recorded over a wide area of Bulgaria.

Data from collecting trips by ALAN OUTEN, another Englishman who has acted as leader of several wildlife tours to Bulgaria between 2004 and 2015. During these trips he has collected or photographed a number of insect species and this has included several members of the Pyraloidea, for which he has supplied the data to me. Again, both day and night-flying species have been recorded over a wide area of Bulgaria.

Data from my own collecting trips to Bulgaria, from 2002 to 2015 and from the private collections of HARRY BEAUMONT, MARTIN HONEY, PHIL JENNER and TONY PICKLES who have accompanied me on collecting trips to Bulgaria.

STOYAN BESHKOV

BARRY (born 1930) and JANE GOATER

BENNY STEEN LARSEN

OLE KARSHOLT (born 1948)

FRANTISEK SLAMKA

NILS RYRHOLM

CSABA SZABÓKY (born 1950)

BOYAN ZLATKOV

Plate 10: Some modern-day entomologists who have collected Pyraloidea in Bulgaria.

HARRY BEAUMONT (born 1943)

EIVIND PALM (born 1948)

TONY PICKLES (born 1946)

ALESSANDRO GIUSTI

ALAN OUTEN (born 1945)

NICK GREATOREX-DAVIES (born 1951)

MARTIN HONEY

PHIL JENNER (born 1945)

Plate 11: More modern-day entomologists who have collected Pyraloidea in Bulgaria.

However, the greatest source of modern data has been the many light traps operated by STOYAN BESHKOV and BOYAN ZLATKOV over the past several years. In general, traps were operated for the entire night and brought in at daybreak. After removal of "macros" and Tortricidae, the remaining "micros" from these many traps were gathered together by ZLATKOV, pooling material from several traps to create a single sample per site per date. These samples, known affectionately as "the smellies", were then mailed them to me in England during the winter for extraction and identification of the Pyraloidea (Plate 12).

Validity of the data

It is crucial that data included in the database, and hence used in this review, are reliable. This applies at several levels, from ensuring that a species is correctly named down to unmasking duplicate reports of the same record that would otherwise make a species appear more frequent than it actually is. In practical terms, this has been relatively simple where the record is recent – I have endeavoured to make sure that every specimen has been examined by at least two people (in many cases, the second person being me). This is not because I do not trust the taxonomic skills of my friends and colleagues (most of whom are more competent than myself); it is more an acknowledgement that everyone makes mistakes and if a second person has always agreed with the first then there is less room for error. Future generations of researchers will be able to know that every identification was agreed with by another person and not undertaken in isolation.

In the case of literature records the situation has often been less easily dealt with. Much material mentioned in the literature may be found reposing in the collections of various museums … but which one! Much of the important early material mentioned by authors such as REBEL may be found in the Naturhistorisches Museum, Wien, Austria (NHMW) where it has already been examined by FRANTISEK SLAMKA as he prepared the text of his volumes on the *Pyraloidea of Europe*. I am extremely grateful to SLAMKA for sharing information with me – an action that has, at the very least, saved me a fortune in air fares. Inevitably, some other specimens cannot be traced. Some of these may eventually be found, but others are, perhaps, destroyed. Other than in cases where the species under discussion is very common and easily recognised, I have specifically mentioned in the species discussion if an important specimen has not been examined. As a general principle, examination of the genitalia of specimens has been the rule; on the rare occasion where the collector has not found this convenient, that fact is stated in the text.

Plate 12: "Goods Inwards". Left-over material from light traps, after extraction of macro-moths and Tortricidae, are pooled for each site, packaged and mailed to me in England for extraction and identification of the Pyraloidea. This image shows the sample from the traps at one site on one night. Most material is abraded and requires genitalia examination for correct identification.

Duplication of data

A significant amount of time has been devoted to identifying published records that are duplications of earlier reports. This process has reduced the number of individual records in the database by approximately one thousand; the "worst" example has the same individual moth reported in publications seven times! It is, of course, not in any way intended to belittle the splendid efforts of others who have preceded me in attempting to unravel the mysteries of Balkan Pyraloidea, particularly authors of works that were never

intended to be anything more than summaries of what had gone before, but it is occasionally apparent that pressures put upon Bulgarian scientists during the Soviet era may not necessarily have fully embodied the present-day western, liberal interpretation of the principal of intellectual property rights. Potential duplications arising from the simple failure of authors to attribute records to their originators, are many; the bulk may be found in publications that appeared during the 1980s, but not exclusively so. Tracking these, in literature that affects four different languages, has not been easy. Thus, I may well not have always been successful. The process has involved first listing *every* available record in the database, from which it was then possible to collate records from the same locality and examine them – very often also consulting the collections at NMNHS. In some cases, a unique form of words that appeared in, for example, a paper published a century earlier is repeated exactly without any form of credit and the duplication is clear; others are less well-defined.

The problems of language

The many changes of political administration over the course of history means that searching for moth records in the literature has necessitated an understanding that more than one language is involved. Without getting too detailed, Turkish, ethnic Bulgarian and ethnic Macedonian have figured prominently up to the start of the twentieth century. Interestingly, many of the important papers that were not written in Bulgarian were printed in German (usually "High" German). Modern Bulgarian then became dominant, but was for a while suppressed during the era of Soviet communism in favour of Russian. The fact that records of Bulgarian Pyraloidea records appear in the literature under so many different languages has had further repercussions, beyond those arising from the author's own linguistic incompetence. Place names have also been translated to other languages, rendering some hard to identify! To this may be added the confusion caused by the changes made to many place names during the Soviet era; most changed back again after the collapse of the "Iron Curtain" but not all maps reflect this. It has been a challenge to attribute some older records to their correct modern day locality – a situation that was not helped by the fact than some data labels on museum specimens were hand-written in Cyrillic script. In most cases, these have been translated for me by native Bulgarian speakers. However, there remains some small scope for confusion because of the fact that some collectors have used "English" names on their labels. This has, in most cases, been achieved phonetically which has given rise to two or more "English" names for each Bulgarian locality (for example Madjarovo and Madzharovo). The confusion is worse when places have first been converted (phonetically) by authors from Bulgarian to German – and then by me back to English! The stress of translating a hand-written label in Cyrillic script referring to a now defunct Soviet place name and then cross-referencing to a presumed duplicate in the German literature before looking it up in an English language atlas has, on more than one occasion, caused the author to question his sanity! It is very much hoped that the present work will, at the very least, enable future researchers to focus on just a single tongue so that if I have included any errors these will be more easily resolved.

The database

The final "output" of this work is a database of information in Microsoft Excel format. This has been a deliberate choice of software, since it is considered to be fairly universally used and it is possible to export Excel files into most other databases or other software types thus rendering the database widely accessible at zero or minimal cost. A copy of the finished database will be lodged at the National Museum of Natural History in Sofia, as well as at a select few other places, on the date of publication of this review paper. The master copy is held by this author and is the version that should be furnished with updates and, therefore, it is to this author that new data should be submitted. Annual replacement of the "back-up copies" should ensure both access and accuracy of the information now available to fresh researchers.

Whilst it is my tentative opinion, and significant hope, that the data in the spreadsheet are accurate and also display all necessary credit to collectors, identifiers and publishers, I am always happy to be contacted with additions and any supportable corrections should these be necessary.

How complete is the taxonomic coverage?

There can be few, if any, who would disagree that a national inventory of any group of invertebrates can never be considered complete. Some species will have been overlooked, others may move into the area from outside and at the other end of the balance some species might vanish from the fauna as time progresses. Consequently, there is little point in being over-concerned about this, provided that the coverage is as complete as it can be within a time frame that is sufficiently short that the earliest records are not regarded as "out of date". This situation was assessed in year 2013, in preparation for the 18th European Congress of Lepidopterology at which a very brief progress report on this project was given. Using the freeware statistical program "EstimateS" the names of taxa and the year of the first record were entered and the number of taxa expected over time was calculated automatically by the four methods indicated on their corresponding graph lines in Fig. 4. The four graph lines are broadly similar. Unsurprisingly, all rise steeply as new species are added to the fauna in the early years of the survey and then level out as additions become harder to make. However, the lines will not run completely level (that would indicate no more species to find), but will rise very gradually indeed on the assumption that there will *always* be something new to add. Taking an average of the end points of these graph lines, the expected number of species of Pyraloidea in Bulgaria may rise to 420, but the time line indicates that it will take around 150 years to achieve this. By that time, the "current" data set would be out of date.

In reality, only a single species was added to the fauna in 2013 (*Bradyrrhoa imperialella* (Ragonot, 1887), one more in 2014 (*Cydalima perspectalis* (Walker, 1859)) and none at all in 2015. On this basis, it seems acceptable to treat the inventory as if it was complete and progress to analysis of the data.

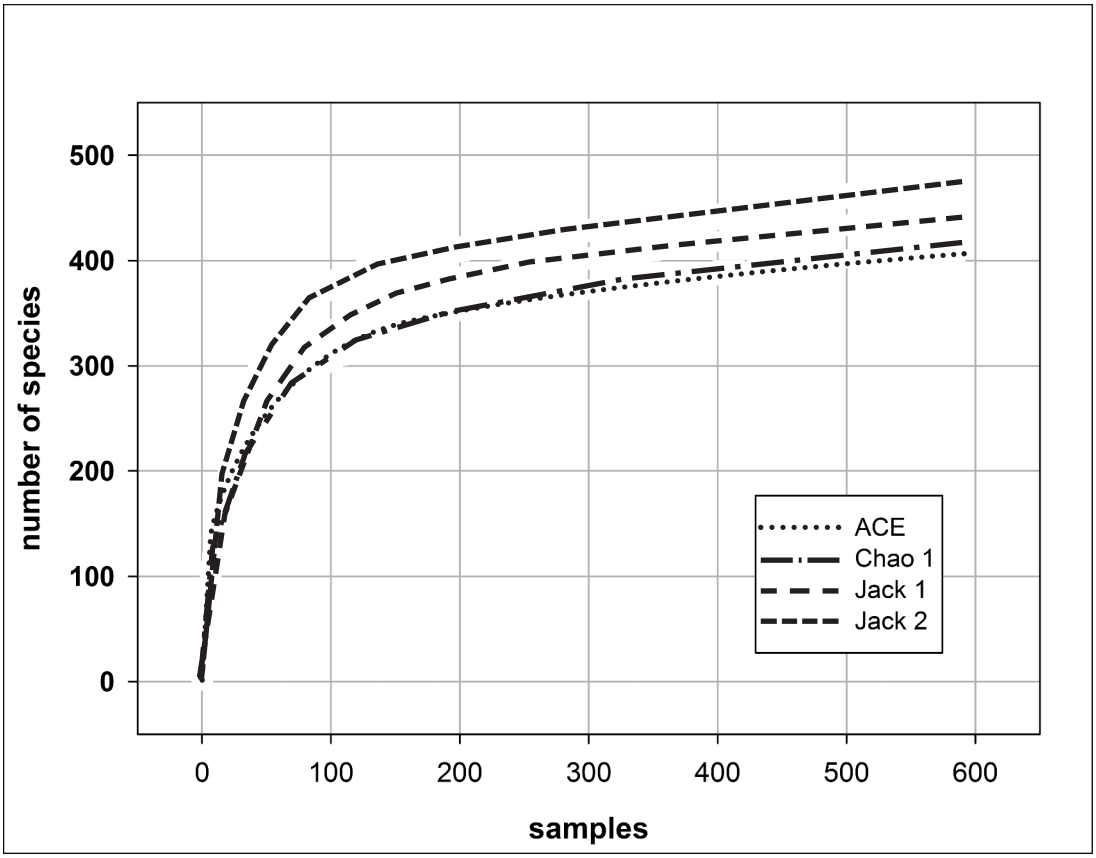


Fig. 4: Predicted number of Pyraloid species in the Bulgarian fauna. The graph lines show recruitment to the national inventory over time and indicate that whilst a few more species might be added, the time required for this would be considerable.

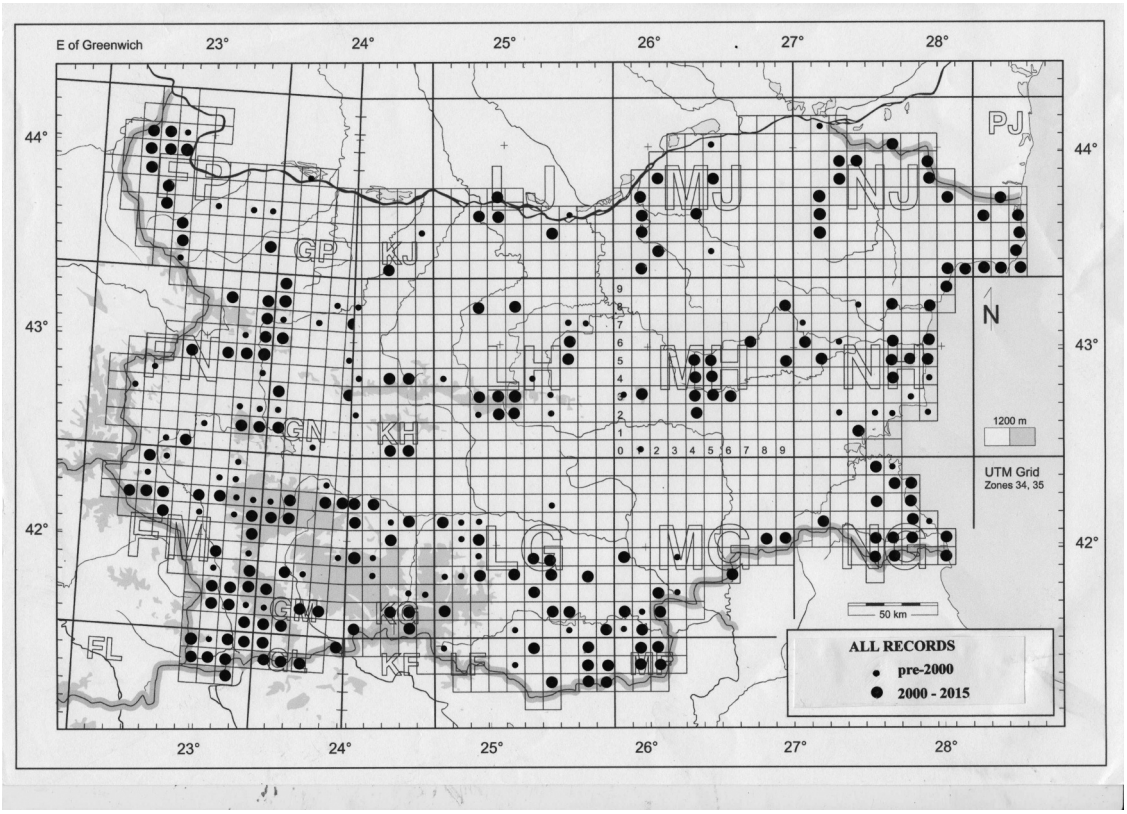


Fig. 5: Coverage map. The map defines 10 Km x 10 Km UTM grid squares. Simple presence of pyraloid moths in each square, is indicated by a small dot for records from prior to year 2000 only or large dot for records from 1st January 2000 to 31 December 2015.

How complete is the geographical coverage

The teritory of Bulgaria is affected, either wholly or partly, by a total of 1239 Universal Transverse Mercator (UTM) 10km x 10km grid squares. Of these, 195 (16%) have recorded pyraloid moths in the years 2000 to 2015 and a further 86 record these moths in the period prior to year 2000 only. Thus, there are records of Pyraloidea from a total of 281 UTM grid squares, representing 23% of available squares in modern Bulgaria. The geographical spread of these records is indicated in Fig. 5 and the data are further analysed in Table 1.

The 281 grid squares affected by records translate, in real terms, to a total of 1981 separate geographical localities that have been sampled, at least once and usually more often, for pyraloid moths. Very few squares have anything near a "thorough" coverage. Unfortunately, such coverage would require monthly visits, as a minimum, from May to September and to do this in all 1239 UTM squares would necessitate 6195 separate visits, working every day from May to September for just over 40 years! This is clearly impractical and in any event by the time the last square had been adequately covered the first would be so far out of date that it would be necessary to start again. The spread of large dots, obtained from 2000 to 2015 across the coverage map at Fig. 5 is, however, judged sufficiently representative for general conclusions to be drawn about the overall pyraloid fauna.

UTM	Total squares or part squares in Bulgaria	Total with post-1999 data	Total with pre-2000 data	Total with data	% coverage of UTM
FL	11	7	1	**8**	**73**
FM	63	17	12	**29**	**46**
FN	74	11	8	**19**	**26**
FP	65	11	5	**16**	**25**
GL	9	5	0	**5**	**56**
GM	50	11	5	**16**	**32**
GN	50	7	6	**13**	**26**
GP	28	0	1	**1**	**4**
KF	6	0	0	**0**	**0**
KG	50	10	5	**15**	**30**
KH	50	4	3	**7**	**14**
KJ	25	1	1	**2**	**8**
LF	31	7	2	**9**	**29**
LG	100	13	9	**22**	**22**
LH	100	9	7	**16**	**16**
LJ	45	4	1	**5**	**11**
MF	11	4	0	**4**	**36**
MG	81	8	4	**12**	**15**
MH	100	12	2	**14**	**14**
MJ	77	8	2	**10**	**13**
NG	44	14	2	**16**	**36**
NH	76	12	9	**21**	**28**
NJ	78	12	1	**13**	**17**
PJ	15	8	0	**8**	**53**
All	**1239**	**195**	**86**	**281**	**23**

Table 1: Summary of coverage to December 2015. See text for discussion.

How complete is seasonal coverage

A plot of standard week number (*vide*, e.g., Plant, 1994 and repeated here at Table 2) against number of records (all time) shows a span of reported pyraloid activity from week 11 (12th – 18th March) to week 46 (12th – 18th November), but with most reports (100 or more records per week) from week 18 (30th April – 6th May) to week 38 (17th – 23rd September). There are clear peaks of records around week 24 (11th – 17th June), week 29 (16th – 22nd July) and weeks 33 and 34 (13th – 26th August).

Week No.	Dates	Week No.	Dates	Week No.	Dates	Week No.	Dates
1	1 Jan – 7 Jan	14	2 Apr – 8 Apr	27	2 Jul – 8 Jul	40	1 Oct – 7 Oct
2	8 Jan – 14 Jan	15	9 Apr – 15 Apr	28	9 Jul – 15 Jul	41	8 Oct – 14 Oct
3	15 Jan – 21 Jan	16	16 Apr – 22 Apr	29	16 Jul – 22 Jul	42	15 Oct – 21 Oct
4	22 Jan – 28 Jan	17	23 Apr – 29 Apr	30	23 Jul – 29 Jul	42	22 Oct – 28 Oct
5	29 Jan – 4 Feb	18	30 Apr – 6 May6	31	30 Jul – 5 Aug	44	29 Oct – 4 Nov
6	5 Feb – 11 Feb	19	7 May – 13 May	32	6 Aug – 12 Aug	45	5 Nov – 11 Nov
7	12 Feb – 18 Feb	20	14 May – 20 May	33	13 Aug – 19 Aug	46	12 Nov – 18 Nov
8	19 Feb – 25 Feb	21	21 May – 27 May	34	20 Aug – 26 Aug	47	19 Nov – 25 Nov
9	26 Feb – 4 Mar	22	28 May – 3 Jun	35	27 Aug – 2 Sep	48	26 Nov – 2 Dec
10	5 Mar – 11 Mar	23	4 Jun – 10 Jun	36	3 Sep – 9 Sep	49	3 Dec – 9 Dec
11	12 Mar – 18 Mar	24	11 Jun – 17 Jun	37	10 Sep – 16 Sep	50	10 Dec – 16 Dec
12	19 Mar – 25 Mar	25	18 Jun – 24 Jun	38	17 Sep – 23 Sep	51	17 Dec – 23 Dec
13	26 Mar – 1 Apr	26	25 Jun – 1 Jul	39	24 Sep – 30 Sep	52	24 Dec – 31 Dec

Table 2: The "Standard Weeks" used to tabulate and analyse adult flight periods (from PLANT, 1994).

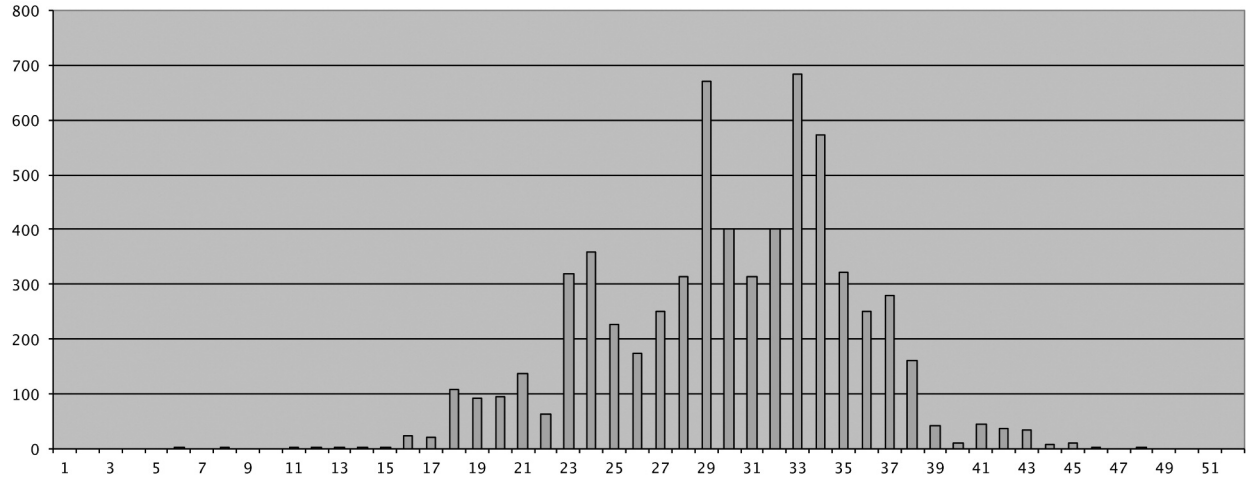


Fig. 6: Seasonal coverage of pyraloid recording in Bulgaria (number of records versus standard week number).

Introduction to the Catalogue

Abbreviations of museum names:
The following formal abbreviations of museums and other institutions are used:

BMNH	British Museum (Natural History), London England
MCZR	Museo Civico di Zoologia, Rome, Italy
MGAB	Museul de Istorie Naturalä "Grigore Antipa", Bucharest, Romania
NHMW	Naturhistorisches Museum, Wien, Austria
NMNHS	National Museum of Natural History Sofia, Bulgaria
NMWC	National Museum of Wales, Cardiff, Wales
ZMB	Institüt fur spezielle Zoologie und Zoologisches Museum der Humboldt Universität, Berlin, Germany
ZMUC	Zoological Museum of the University of Copenhagen, Denmark
TMB	Természettudományi Museum, Budapest, Hungary
BFUS	Biology Faculty of the University of Sofia "Kliment Ohridsky", Sofia, Bulgaria.

Other abbreviations used
I have tried to avoid abbreviations because these are usually unhelpful when more than one language is involved. However, the following have been adopted:

in coll. = in the collection of
det. = determined (identified) by
gen. det. = genitalia determination
leg. = legit (person who took the specimen from nature).
nec = not according to (see, for example, species 5791 and 5793)

Place names
To avoid confusion, I have used modern names in the list below except when citing a direct quotation from a literature source or data label.

People's names
Some authors have spelled their own names in different way. In particular, DRENOWSKY has spelled his own name in three ways at least *in his own publications …* DRENOWSKY, DRENOVSKI and DRYANOWSKI. I have tried to standardise; in cases where I may have missed a different spelling this should *not* be taken to imply a different person.

Definition of a "record"
A single record is defined as a report of a taxon, at a place on a date, by a person.

It is independent of the number of individuals, but separate sexes are noted as separate records. Thus, 100 males plus 25 females of species A at locality B on date C creates 2 records – one of 100 males and one of 25 females. The sexes are separated in this way so that in due course, if sufficient data are accumulated, any phenological or other differences between the sexes might be detected.

Where multiple persons report the same taxon at the same place on the same date, this is treated as a single record in the database, with all the various persons reporting it credited by entries in separate columns on the same line of the spreadsheet.

Format of species entries in the Catalogue

Entries in the main Catalogue adhere to the following format:

Line 1: European checklist number, allocated in KARSHOLT & RAZOWSKI (1996), followed by the name currently accepted as valid for the taxon under discussion, including the name and date of the authority applying that name.
Where a subspecies is given this represents the author's opinion, not merely perceived wisdom, unless stated to the contrary.
Next lines: Important synonymy, including names used in Bulgaria-specific inventories even if these are not used elsewhere.
Next lines: The number of Bulgarian records (see definition) in the database followed by the span of years affected by the records, from earliest to latest. In cases where the date is not known with certainty, the date of the publication is entered in parentheses — to indicate the earliest or latest possible year as appropriate. Thus, a species noted as occurring from "1925 to [1985]" was certainly first noted in Bulgaria during 1925, but the actual year of the last record, which was published during 1985, is not known and might be significantly earlier. The text that follows will explain if data are available to allow this.
Next lines: Free text discussion about the taxon. English grammar and punctuation apply. In particular, semi-colons separate each entry in lists, commas separate text within each entry and proper nouns have an initial capital. Where data are available, the flight period of the adult moth is mentioned.
Final paragraph: Data on larval food plants is given, but these are almost exclusively from areas outside Bulgaria.

Incorrect data
Square brackets are used to indicate unconfirmed or incorrect data. Where a species is erroneously recorded, but included in the checklist so that the reader is aware that it has not been overlooked, the entire species entry is placed in square brackets.

Dates
Dates follow the format dd.mm.yyyy as in this example for the author's date of birth … 16.XI.1952. If the century of the record has been deduced the date will follow the format 16.XI.[19]52. Elsewhere, dates in square brackets, as in this example … [1985] … are the dates of published data being quoted and may or may not be the *actual* dates intended by the original author.

Catalogue of the Crambidae and Pyralidae of Bulgaria

This catalogue takes the form of four separate lists.

List 1. Deleted taxa	Only those taxa that have been listed in the literature at some point in time are included. The reason for not accepting the record is briefly stated; fuller explanation may be found in list 4.
List 2. Taxa lost via synonymy	Self-explanatory. These species are now synonymised with others; this list is primarily to spare any confusion.
List 3. Checklist	A simple, synonymic checklist of species currently admitted to the Bulgarian fauna, annotated with the year of the last record. This list should serve as a quick reference guide in the field or even as a label list for collections.
List 4. The main Catalogue	This is a complete list of all species ever mentioned for Bulgaria, including the deleted species. All relevant synonyms are noted, records are enumerated, the year of the earliest and latest record is given and the species is discussed in relation to Bulgaria. Flight periods of the adults are indicated for Bulgaria; larval foodplants are indicated, where known, but in most cases are not derived from Bulgarian field work.

List 1. Deleted taxa

The following 16 taxa, having been mentioned in a formal publication at some point in time, are formally deleted from the Bulgarian fauna. A summary explanation is mentioned, but for fuller explanation refer to List 4, in which these species are listed within square brackets.

Aphomia (= *Melissoblaptes) unicolor* (Staudinger, 1880)	Incorrect identification
Aphomia (= *Corcyra*) *cephalonica* (Stainton, 1866)	Recorded in error
Pempelia brephiella (Staudinger, 1879)	Incorrect identification
Phycita pedisignella (Ragonot, 1887)	Incorrect identification
Acrobasis glaucella Staudinger, 1859	Incorrect identification
Mussidia nigrivenella Ragonot, 1888	Incorrect identification
Homoeosoma calcella Ragonot, 1887	Unsupported listing in literature
Cadra abstersella (Zeller, 1847)	Insufficient evidence
Synaphe lorquinalis (Guenée, 1854)	Incorrect identification
Aglossa asiatica Erscholt, 1872	Insufficient evidence
Crambus palustrella Ragonot, 1876	Incorrect identification
Agriphila geniculea (Haworth, [1811])]	Incorrect identification
Catoptria pyramidella (Treitschke, 1832)	Insufficient evidence
Catoptria laevigatella (Lederer, 1870)	Incorrect identification
Eurrhypis guttulalis (Herrich-Schäffer, 1848)	Insufficient evidence
Mecyna lutealis (Duponchel, 1833)	Incorrect identification

List 2. Taxa lost via synonymy

The following species are synonymised with others in the list. All are included in List 4.

Catastia acraspedella Staudinger, 1879	Synonymised here with *Catastia marginea* ([Denis & Schiffermüller], 1775)
Phycita imperialella (Ragonot, 1887)	Transferred here to *Bradyrrhoa imperialella* (Ragonot, 1887) comb. nov.
Hypochalcia ghilianii Staudinger, 1870	Synonym of *Hypochalcia ahenella* ([Denis & Schiffermüller], 1775)]
Pterothrixidia impurella (Duponchel, 1836)	Synonym of *Pterothrixidia rufella* (Duponchel, 1836)
Pterothrixidia caucasiella (Ragonot, 1888)]	Synonym of *Pterothrixidia rufella* (Duponchel, 1836)
Euzophera nessebarella Soffner, 1962	Synonym of *Euzophera cinerosella* Zeller, 1839
Homoeosoma subalbatella (Mann, 1864	Synonym of *Homoeosoma nimbella* Duponchel, 1837
Agriphila brioniella (Zerny, 1914)	Synonym of *Agriphila paleatella* (Zeller, 1847)

List 3. Quick-reference checklist

This is a quick-reference, synonymic checklist of species currently admitted to the Bulgarian fauna, annotated with the year of the last record. Deleted species are not included in this list (see List 4). A total of 389 pyraloid taxa is listed, of which 3 are subspecies, so that the current list of species accepted on the Bulgarian fauna is 386. These divide into 224 crambid taxa (222 species plus 2 additional subspecies) and 164 pyralid taxa (plus one additional subspecies). Where the year of the latest record is in square brackets, this is the year of publication – the record itself is undated and whilst it may have been made in the year specified in most cases is likely to be considerably older. This list may find use in the field, at the bench when compiling lists or other situations, but List 4 should always be referred to for greater detail.

	PYRALIDAE LATREILLE, 1809	
	Subfamily Galleriinae ZELLER, 1848	
	Tribus Tirathabini WHALLEY, 1964	
5569	*Aphomia sociella* (LINNAEUS, 1758)	2011
5574	*Lamoria zelleri* (JOANNIS, 1932)	2013
	= *Melissoblaptes zelleri* JOANNIS, 1932	
	= *Aphomia zelleri* (JOANNIS, 1932)	
	= *Melissoblaptes bipunctanus* ZELLER 1848 nec CURTIS (sensu TULESHKOV, 1930)	
5578	*Lamoria anella* ([DENIS & SCHIFFERMÜLLER], 1775)	2013
	Tribus Galleriini ZELLER, 1848	
5587	*Achroia grisella* (FABRICIUS, 1794)	2010
5589	*Galleria mellonella* (LINNAEUS, 1758)	2014
	Subfamily Phycitinae ZELLER, 1839	
	Tribus Cryptoblabini ROESLER, 1968	
5668	*Cryptoblabes bistriga* (HAWORTH, 1811)	1982
	Tribus Phycitini ZELLER, 1839	
5673	*Trachonitis cristella* ([DENIS & SCHIFFERMÜLLER], 1775)	2014
5676	*Salebriopsis albicilla* (HERRICH-SCHÄFFER, 1849)	1982
5678	*Elegia fallax* (STAUDINGER, 1881)	2013
5679	*Elegia similella* (ZINCKEN, 1818)	2013
5684	*Matilella fusca* (HAWORTH, 1811)	2013
	= *Pyla fusca* (HAWORTH, 1811)	
	= *Salebria fusca* HW.	
5770	*Moitrelia obductella* ZELLER, 1839	2014
	= *Pempelia obductella* ZELLER, 1839	
5696	*Moitrelia placidella* (ZERNY, 1929) comb. nov.	2013
	= *Pempeliella alibotuschella* (DRENOWSKI, [1932] 1931) syn. nov.	
	= *Delplanqueia nobilella* sensu LERAUT, 2014 partim, nec *nobilella* RAGONOT, 1887	
5690	*Delplanqueia dilutella* ([DENIS & SCHIFFERMÜLLER], 1775) sensu stricto	2014
….	*Delplanqueia inscriptella* (DUPONCHEL, 1836)	2015
5686	*Pempeliella ornatella* ([DENIS & SCHIFFERMÜLLER], 1775)	2015
5687	*Pempeliella bulgarica* SLAMKA & PLANT, 2016	2015
5691	*Pempeliella sororiella* ZELLER, 1839	2015
5700	*Catastia marginea* ([DENIS & SCHIFFERMÜLLER], 1775)	2013
	= *Catastia acraspedella* STAUDINGER, 1879	
5706	*Khorassania compositella* (TREITSCHKE, 1835)	2015
5709	*Insalebria serraticornella* (ZELLER, 1839)	1936
	= *Serrulacera serraticornella* (ZELLER, 1839)	
	= *Nephopteryx serraticornella* (ZELLER, 1839)	
	= *Phycis gregella* EVERSMANN, 1844	
	= *Insalebria gregella* sensu SLAMKA, 1997	
	= *Selagia zernyi* TOLL, 1942	
5718	*Sciota fumella* (EVERSMANN, 1844)	2010
	= *Clasperopsis fumella* (EVERSMANN, 1844)	
5722	*Sciota insignella* (MANN, 1862)	[1903]
	= *Nephopterix insignella* MANN, 1862	
5724	*Sciota rhenella* (ZINCKEN, 1818)	2010
	= *Nephopteryx rhenella* sensu REISSER & ZÜLLICH, 1934	
5727	*Sciota adelphella* (FISCHER VON RÖSLERSTAMM, 1836)	2002
5730	*Denticera divisella* (DUPONCHEL, 1842)	2014
	= *Nephopteryx divisella* sensu REISSER & ZÜLLICH, 1934	
5732	*Selagia argyrella argyrella* ([DENIS & SCHIFFERMÜLLER], 1775)	2013
5734	*Selagia argyrella subochrella* (HERRICH-SCHÄFFER, 1849)	2010

5735	*Selagia spadicella* (Hübner, 1796)	2014
5742	*Etiella zinckenella* (Treitschke, 1832)	2014
5746a	*Merulempista brucella* Staudinger, 1879	2013
5751	*Oncocera semirubella* (Scopoli, 1763)	2014
5772	*Oncocera amoenella* (Zeller, 1848)	2011
	= *Pempelia amoenella* (Zeller, 1848)	
5753	*Laodamia faecella* (Zeller, 1839)	2014
	= *Oncocera faecella* (Zeller, 1839)	
5754	*Alophia combustella* (Herrich-Schäffer, 1852)	2014
5760	*Pempelia alpigenella* (Duponchel, 1836)	2013
5767	*Pempelia palumbella* ([Denis & Schiffermüller], 1775)	2014
5766	*Rhodophaea formosa* (Haworth, 1811)	2013
	= *Pempelia formosa* (Haworth, 1811)	
	= *Salebria formosa* (Haworth, 1811) sensu Slivov, 1970	
5763	*Psorosa albariella* Zeller, 1839	2013
	= *Pempelia albariella* (Zeller, 1839)	
5774	*Psorosa dahliella* (Treitschke, 1832)	2014
	= *Pempelia dahliella* (Treitschke, 1832)	
5775	*Psorosa nucleolella* (Möschler, 1866)	2011
	= *Pempelia nucleolella* (Möschler, 1866)	
	= ?*strictella* Mann 1861	
5775	*Psorosa mediterranella* Amsel, 1953	2010
5781	*Dioryctria sylvestrella* (Ratzeburg, 1840)	2013
	= *splendidella* misidentification	
5783	*Dioryctria simplicella* Heinemann, 1863	2014
	= *mutatella* (Fuchs, 1903)	
5784	*Dioryctria abietella* ([Denis & Schiffermüller], 1775)	2014
5786	*Dioryctria mendacella* (Staudinger, 1859)	1965
5791	*Phycita cryptica* Plant & Slamka, 2016	2015
	= *Phycita metzneri* (Zeller, 1846) nec auct. partim	
	= *torrenti* Agenjo, 1963 partim	
5792	*Phycita meliella* (Mann, 1864)	2015
5793	*Phycita poteriella* (Zeller, 1846)	2012
	= *Phycita metzneri* auct. nec Zeller, 1846.	
	= *Phycita kruegeri* Turati, 1911	
	= *Nephopteryx poteriella* Zeller, 1846	
5795	*Phycita torrenti* Agenjo, 1963	2014
5796	*Phycita roborella* ([Denis & Schiffermüller], 1775)	2015
	= *spissisella* (Fabricius, 1776)	
5797	*Phycita coronatella* (Guenée, 1845)	2015
5804	*Hypochalcia dignella* (Hübner, 1796)	1929
5806	*Hypochalcia balcanica* Ragonot, 1887	[1893]
5811	*Hypochalcia ahenella* ([Denis & Schiffermüller], 1775)	2015
	= *rubiginella* Treitschke, 1832	
	= *ghilianii* Staudinger, 1870	
	= *gianelliella* Ragonot, 1887 (vide Karsholt & Razowski, 1996)	
	= *caucasica* Ragonot 1893	
	= *lugubrella* Hering, 1924	
5816	*Hypochalcia subrubiginella* Ragonot, 1897	[1903]
	= *gianelliella* Ragonot, 1887	
5825	*Epischnia ampliatella* Heinemann, 1864	2015
5827	*Epischnia prodromella* (Hübner, 1799)	1915
5830	*Epischnia illotella* Zeller, 1839	2015
5835	*Epischnia asteris* Staudinger 1870	2013
	= *bankesiella* Richardson, 1888	
5846	*Lymphia chalybella* (Eversmann, 1844)	2012
5848	*Nephopterix angustella* (Hübner, 1796)	2012
	= *Alispa angustella* (Hübner) sensu Slivov, 1970	
5850	*Oxybia transversella* (Duponchel, 1836)	2014
5853	*Acrobasis tumidana* ([Denis & Schiffermüller], 1775)	2014
	= *Conobathra repandana* ([Denis & Schiffermüller], 1775) nec Fabricius, 1798	
5854	*Acrobasis repandana* (Fabricius, 1798)	2015
	nec *repandana* ([Denis & Schiffermüller], 1775)	
	= *Conobathra tumidella* (Zincken, 1818)	

5856	*Acrobasis advenella* (Zincken, 1818)	2014
	= *Trachycera advenella* (Zincken, 1818)	
5857	*Acrobasis suavella* (Zincken, 1818)	2011
	= *Trachycera suavella* (Zincken, 1818)	
5858	*Acrobasis legatea* (Haworth, 1811)	2015
	= *Tinea legatella* Hübner, 1796 nec [Denis & Schiffermüller], 1775	
	= *legatalis* (Hübner, 1825) sensu Slamka, 1997	
5859	*Acrobasis dulcella* (Zeller, 1848)	2011
5860	*Acrobasis marmorea* (Haworth, 1811)	2011
5864	*Acrobasis obliqua* (Zeller, 1847)	2010
5867	*Acrobasis centunculella* (Mann, 1859)	2013
5868	*Acrobasis sodalella* Zeller, 1848	2011
5869	*Acrobasis consociella* (Hübner, 1813)	2015
5870a	*Acrobasis fallouella* (Ragonot, 1871)	2014
5871	*Acrobasis obtusella* (Hübner, 1796)	2014
5875	*Apomyelois ceratoniae* (Zeller, 1839)	2005
5878	*Glyptoteles leucacrinella* Zeller, 1848	2012
5880	*Episcythrastis tetricella* ([Denis & Schiffermüller], 1775)	2013
	= *Myelopsis tetricella* ([Denis & Schiffermüller], 1775)	
5881	*Episcythrastis tabidella* (Mann, 1864)	1915
5886	*Eurhodope monogrammos* (Zeller, 1867)	1932
	= *Myelois monogrammos* Zeller, 1867	
5888	*Eurhodope rosella* (Scopoli, 1793)	2015
5891	*Eurhodope cirrigerella* (Zincken, 1818)	2013
	= *Kyra cirrigerella* (Zincken, 1818)	
	= *Myelois cirrigerella* (Zincken, 1818)	
5896	*Myelois multiforella* Ragonot, 1893	2010
	= *multiflorella* Ragonot, 1887 sensu Karsholt & Razowski, 1996	
	= *luteocinctella* Caradja, 1930	
5898	*Myelois circumvoluta* (Fourcroy, 1785)	2015
	= *cribrella* (Hübner, 1796) misidentification	
5904	*Pterothrixidia rufella* (Duponchel, 1836)	2014
5910	*Bradyrrhoa gilveolella* (Treitschke, 1832)	2014
5913	*Bradyrrhoa confiniella* Zeller, 1848	[1901]
	= *Megasis nubigerella* Ragonot, 1887	
5914	*Bradyrrhoa trapezella trapezella* Duponchel, 1836	2013
	= *semiella* Staudinger, 1879	
	= *senilella* misspelling	
	= *trapeziella* misspelling	
5721	*Bradyrrhoa imperialella* (Ragonot, 1887) comb. nov.	2013
	= *Phycita imperialella* (Ragonot, 1887) sensu Leraut, 2014	
	= *Sciota imperialella* (Ragonot, 1887)	
	= *Nephopterix imperialella* Ragonot, 1887	
5925	*Asalebria florella* (Mann, 1862) ssp. *florella* (Mann, 1862)	2014
	= *Pristophorodes* Amsel, 1963	
5759	*Asalebria geminella* (Eversmann, 1844)	1955
	= *Pempelia geminella* (Eversmann, 1844)	
5930	*Megasis rippertella rippertella* (Zeller, 1839)	2014
5933	*Isauria dilucidella* (Duponchel, 1836)	2013
	= *Megasis dilucidella* Duponchel, 1836	
	= *Megasis ilignella* Zeller, 1839	
	= *illignella* Z., misspelling	
	= *Divona iligella* Zeller, 1839	
	= *Adelosemia incredibilis* Staudinger, 1879	
5946	*Asarta aethiopella* (Duponchel, 1836)	2009
5956	*Epischidia fulvostrigella* (Eversmann, 1844)	1982
	= *Phycis fulvostrigella* Eversmann, 1844	
	= *Pempelia fronticornella* Herrich-Schäffer, 1860	
5962	*Gymnancyla canella* ([Denis & Schiffermüller], 1775)	[1967]
5964	*Gymnancyla hornigii* (Lederer, 1852)	2014
	= *Spermatophthora hornigii* Lederer, 1852	
	= *Spermatophora hornigii* misspelling	
5980	*Eccopisa effractella* Zeller, 1848	2014

5986	*Assara terebrella* (Zincken, 1818)	2015
	= *Hyphantidium terebrellum* Zincken, 1818	
5988	*Michaeliodes friesei* Roesler, 1969	2008
5993	*Euzophera pinguis* (Haworth, 1811)	2014
5994	*Euzophera bigella* (Zeller, 1848)	2012
5997	*Euzophera cinerosella cinerosella* (Zeller, 1839)	2014
	= *Euzophera nessebarella* Soffner, 1962	
5999	*Euzophera costivittella* Ragonot, 1887	2010
6003	*Euzophera pulchella* Ragonot, 1887	2013
6009	*Euzophera fuliginosella* Heinemann, 1865	1981
	= *Cymbalorissa fuliginosella* Heinemann, 1865	
6011	*Euzopherodes charlottae* (Rebel, 1914)	2011
6012	*Euzopherodes vapidella* (Mann, 1857)	2011
6013	*Euzopherodes lutisignella* (Mann, 1869)	[1973]
6015	*Nyctegretis lineana* (Scopoli, 1786)	2012
	= *achatinella* (Hübner, 1824)	
6016	*Nyctegretis ruminella* La Harpe, 1860	1982
6027	*Ancylosis cinnamomella* (Duponchel, 1836)	2015
— —	*Ancylosis albidella (*Ragonot, 1888) stat. rev. bona sp.	1956
6028	*Ancylosis sareptalla* (Herrich-Schäffer, 1861)	2011
	= *sareptella* auct. misspelling	
	= *barbella* Lederer, 1863	
	= *albidella* Ragonot, 1888	
6033	*Ancylosis maculifera maculifera* Staudinger, 1870	[1973]
6036	*Ancylosis roscidella* (Eversmann, 1844)	[1973
	= *Heterographis roscidella* (Eversmann, 1844)	
	= *cinerella* Stainton, 1859	
	= *ephedrella* (Herrich-Schäffer, 1860)	
6053	*Ancylosis hellenica* (Staudinger, 1871)	[1973]
	= *Heterographis hellenica* (Staudinger, 1871)	
6057	*Ancylosis oblitella* (Zeller, 1848)	2011
	= *Cabotia oblitella* (Zeller, 1848)	
6069	*Ancylosis deserticola* (Staudinger, 1870)	[1967]
	= *Staudingeria deserticola* (Staudinger, 1870)	
6072	*Homoeosoma sinuella* (Fabricius, 1794)	2013
6078	*Homoeosoma inustella* Ragonot, 1884	2014
6079	*Homoeosoma nebulella* ([Denis & Schiffermüller], 1775)	2012
6082	*Homoeosoma* (*Anhomoeosoma*) *nimbella* (Duponchel, 1837)	2011
	= *Anhomoeosoma nimbella* (Duponchel, 1837)	
6086	*Phycitodes maritima* (Tengström, 1848)	2012
	= *carlinella* (Heinemann, 1865)	
	= *cretacella* (Roesler, 1866)	
6086a	*Phycitodes bentickella* (Pierce, 1937)	2011
	= *eliseannae* Leraut, 2002	
6087	*Phycitodes binaevella* (Hübner, 1813)	2015
6088	*Phycitodes lacteella* (Rothschild, 1915)	2014
6089	*Phycitodes inquinatella* (Ragonot, 1887)	2014
	= *ravonella* (Pierce, 1937)	
6090	*Phycitodes saxicola* (Vaughan, 1870)	2010
6091	*Phycitodes albatella* Ragonot, 1887	2014
	= *pseudonimbella* Bentinck, 1936 misidentification – not European	
6098	*Metallosticha argyrogrammos* (Zeller, 1847)	2014
6102	*Plodia interpunctella* (Hübner, 1813)	2014
6105	*Ephestia kuehniella* (Zeller, 1879)	2013
	= *Anagasta kuehniella* Zeller, 1879	
6107	*Ephestia welseriella* (Zeller, 1848)	2013
	= *Anagasta welseriella* (Zeller, 1848)	
	= *Myelois modestella* Lederer, 1863	
	= *Myelosis modestella* sensu Rebel (1903) – misspelling	
6109	*Ephestia disparella* Hampson, 1901	[1973]
6112	*Ephestia elutella elutella* (Hübner, 1796)	2015
6113	*Ephestia woodiella* Richards & Thomson, 1932	2014
	= *Ephestia unicolorella woodiella* Richards & Thomson, 1932 (misidentification)	
	= *Ephestia parasitella* Staudinger 1859 partim (misidentification)	

6116	*Cadra furcatella* (Herrich-Schäffer, 1849)	2014
	= *intricata* Alphéraky, 1876	
	= *afflatella* (Mann, 1855) misidentification.	
6118	*Cadra figulilella* (Gregson, 1871)	2011
6119	*Cadra cautella* (Walker, 1863)	[1973]
	Tribus Anerastiini Ragonot, 1885	
6127	*Coenochroa ablutella* (Zeller, 1839)	[1967]
	= *Raphimetopus ablutella* (Zeller, 1839)	
6135	*Hypsotropa limbella* Zeller, 1848	2015
6145	*Ematheudes punctella* (Treitschke, 1833)	2015
6159	*Polyocha cremoricosta* Ragonot, 1895	1987
	= *Fregenia prolai* Hartig, 1947	
	Subfamily Pyralinae Latreille, 1809	
	Tribus Endotrichini Ragonot, 1890	
5661	*Endotricha flammealis* ([Denis & Schiffermüller], 1775)	2015
	Tribus Hypotiini Chapman, 1902	
5600	*Hypotia massilialis* (Duponchel, 1832)	2014
	= *Palmitia massilialis* (Duponchel, 1832)	
	Tribus Pyralini Latreille, 1809	
5611	*Synaphe moldavica* (Esper, 1794)	2011
	= *diffidalis* (Guenée, 1854)	
5614	*Synaphe antennalis* (Fabricius, 1794)	2002
	= *connectalis* Hübner, 1796)	
5620	*Synaphe punctalis* (Fabricius, 1775)	2015
	= *Cleodobia angustalis* sensu Soffner (1967)	
	= *Synaphe angustalis* sensu Slivov (1970).	
5624	*Bostra obsoletalis* (Mann, 1884)	[1986]
5625	*Pyralis regalis* ([Denis & Schiffermüller], 1775)	2015
5627	*Pyralis farinalis* Linnaeus, 1758	2015
	= *manihotalis* (Guenée, 1854)	
5631	*Aglossa* (*Aglossa*) *signicostalis* Staudinger, 1871	1911
5632	*Aglossa caprealis* (Hübner, 1809)	2015
5633	*Aglossa pinguinalis* (Linnaeus, 1758)	2010
5637	*Stemmatophora combustalis* (Fischer von Röslerstamm, 1842)	2015
5643	*Stemmatophora brunnealis* (Treitschke, 1829)	2015
	= *Actenia brunnealis* (Treitschke, 1829)	
5644	*Stemmatophora honestalis* (Treitschke, 1829)	2014
	= *Actenia honestalis* (Treitschke, 1829)	
5646	*Loryma egregialis* (Herrich-Schäffer, 1838)	2014
	= *Ulotricha egregialis* (Herrich-Schäffer, 1838)	
5652	*Hypsopygia* (*Hypsopygia*) *costalis* (Fabricius, 1775)	2013
5654	*Hypsopygia* (*Ocrasa*) *fulvocilialis* (Duponchel, 1834)	2013
	= *Herculia fulvocilialis* (Duponchel, 1834)	
5655	*Hypsopygia* (*Ocrasa*) *incarnatalis* (Zeller, 1847)	2010
5656	*Hypsopygia* (*Ocrasa*) *rubidalis* ([Denis & Schiffermüller], 1775)	2014
5658	*Hypsopygia* (*Ocrasa*) *glaucinalis* (Linnaeus, 1758)	2013
	= *Orthopygia glaucinalis* (Linnaeus, 1758)	
	CRAMBIDAE Latreille, 1810	
	Subfamily Crambinae Latreille, 1810	
	Tribus Chilonini Heinemann, 1865	
6222	*Chilo phragmitella* (Hübner, [1810])	2014
6223	*Chilo luteella* (Motschulsky, 1866)	2011
6226	*Chilo pulverosella* Ragonot, 1895	[1967]
6229	*Thopeutis cicatricella* (Hübner, [1824])	[1985]
	= *Friedlanderia cicatricella* (Hübner, [1824])	
	= *Acigona cicatricella* (Hübner, [1824])	
6233	*Thopeutis galleriella* (Ragonot, 1892)	[1985]
6231	*Pseudobissetia terrestrella* Christoph, 1885)	2013
	Tribus Calamotrophini Gaskin, 1988	
6235	*Calamotropha paludella* (Hübner, [1824])	2014
6236	*Calamotropha aureliellus* (Fischer von Röslerstamm, 1841)	2010
	Tribus Crambini Latreille, 1810	
6207	*Euchromius ocelleus* (Haworth, [1811])	2015

6210	*Euchromius bellus* (Hübner, 1796)	2015
6212	*Euchromius superbellus* (Zeller, 1849)	2011
6214	*Euchromius rayatellus* (Amsel, 1949)	2009
6217	*Euchromius ramburiellus* (Duponchel, 1836)	[1985]
6241	*Chrysoteuchia culmella* (Linnaeus, 1758)	2014
	= *hortuella* (Hübner, 1796)	
6243	*Crambus pascuella* (Linnaeus, 1758)	2015
6244	*Crambus silvella* (Hübner, [1813])	[1985]
6245	*Crambus uliginosella* Zeller, 1850	[1985]
6250	*Crambus pratella* (Linnaeus, 1758)	[1985]
	= *dumetella* Hübner, [1813]	
6251	*Crambus lathoniellus* (Zincken, 1817)	2014
	= *nemorella* (Hübner, [1813])	
	= *pratellus* auct.	
6253	*Crambus perlella* (Scopoli, 1763)	2004
6257	*Agriphila deliella* (Hübner, [1813])	2014
6258	*Agriphila tristella* ([Denis & Schiffermüller], 1775)	2015
6260	*Agriphila inquinatella* ([Denis & Schiffermüller], 1775)	2015
6262	*Agriphila paleatella* (Zeller, 1847)	2015
	= *Agriphila brioniella* (Zerny, 1914)	
	= *Agriphila vasilevi* Ganev, 1983	
6264	*Agriphila latistria* (Haworth, [1811])	1995
6266	*Agriphila selasella* (Hübner, [1813])	1982
6267	*Agriphila straminella* ([Denis & Schiffermüller], 1775)	2014
6270	*Agriphila poliellus* (Treitschke, 1832)	[2008]
6272	*Agriphila tersella* (Lederer, 1855)	[1985]
6276	*Agriphila tolli tolli* Błeszyński 1952	2014
6277	*Agriphila dalmatinella* (Hampson, 1900)	2013
6280	*Catoptria permutatella* (Herrich-Schäffer, [1848])	2012
6281	*Catoptria gozmanyi* Błeszyński, 1956 (nec Slivov, 1981)	2010
— —	*Catoptria casperella* Ganev, 1983	2015
6282	*Catoptria myella* (Hübner, 1796)	2014
	= *gozmanyi* Slivov, 1981, nec Błeszyński, 1956	
6283	*Catoptria osthelderi* (de Lattin, 1950)	1980
6289	*Catoptria luctiferella* (Hübner, [1813])	1932
6291	*Catoptria acutangulella* (Herrich-Schäffer, 1848)	[1985]
6292	*Catoptria olympica* Ganev, 1983	[1985]
6294	*Catoptria radiella* (Hübner, [1813])	[1985]
6299	*Catoptria mytilella* (Hübner, [1805])	2015
6301	*Catoptria pinella* (Linnaeus, 1758)	2015
6304	*Catoptria margaritella* ([Denis & Schiffermüller], 1775)	[1985]
6306	*Catoptria fulgidella* (Hübner, [1813])	[1985]
6312	*Catoptria languidella* (Zeller, 1863)	[1985]
6313	*Catoptria ciliciella* (Rebel, 1893)	[1985]
6314	*Catoptria falsella* ([Denis & Schiffermüller], 1775)	2015
6315	*Catoptria confusella* (Staudinger, 1881)	2015
6318	*Catoptria verella* (Zincken, 1817)	2010
6319	*Catoptria petrificella* (Hübner, 1796)	[1896]
	= *coulonellus* Duponchel, 1836	
6322	*Catoptria lythargyrella* (Hübner, 1796)	2011
6323	*Catoptria domaviella* (Rebel, 1904)	[1985]
	= *domaniellus* Rebel sensu Drenowski, 1925	
6325	*Catoptria biformella roesleri* Ganev, 1983	2014
6326	*Catoptria biformella majorella* (Drenowski, 1925)	2014
….	*Catoptria biformella klimeschi* Ganev, 1983	2015
6330	*Mesocrambus candiellus* (Herrich-Schäffer, [1848])	[1985]
6333	*Metacrambus carectellus* (Zeller, 1847) bon. comb.	2012
6340	*Xanthocrambus saxonellus* (Zincken, 1821)	2015
6344	*Chrysocrambus cassentiniellus* (Herrich-Schäffer, [1848])	2014
	= *Chrysocrambus linetella* (Fabricius, 1781)	
6348	*Chrysocramboides craterella craterella* Scopoli, 1763	2014
6350	*Thisanotia chrysonuchella* (Scopoli, 1763)	2014
6352	*Pediasia fascelinella* (Hübner, [1803])	2011

6353	*Pediasia jucundella* (Herrich-Schäffer, 1848)	2014
6355	*Pediasia luteella* ([Denis & Schiffermüller], 1775)	2013
6364	*Pediasia contaminella* (Hübner, 1796)	2014
6367	*Pediasia aridella* (Thunberg, 1788)	2011
	= *kasyi* Ganev, 1983, nec Bleszynski, 1960	
	= *mikkolai* Ganev, 1987	
6372	*Pediasia matricella* (Treitschke, 1832)	2014
6376	*Platytes cerusella* ([Denis & Schiffermüller], 1775)	2014
6377	*Platytes alpinella* (Hübner, [1813])	2014
	Tribus Ancylolomini Swinhoe & Coates, 1891	
6379	*Ancylolomia palpella* ([Denis & Schiffermüller], 1775)	2014
6380	*Ancylolomia tentaculella* (Hübner, 1796)	2014
6381	*Ancylolomia disparalis* (Hübner, [1825])	2010
	= *disparella* (Hübner, [1813])	
6384	*Ancylolomia pectinatella* (Zeller, 1847)	2009
6386	*Talis quercella* ([Denis & Schiffermüller], 1775)	[1985]
	Subfamily Schoenobiinae Duponchel [1846]	
6390	*Schoenobius gigantella* ([Denis & Schiffermüller], 1775)	2014
6392	*Donacaula nilotica* (Zeller, 1867) ssp. *alpherakii* Staudinger, 1874	[1986]
6393	*Donacaula forficella* (Thunberg, 1794)	2009
6394	*Donacaula mucronella* (Denis & Schiffermüller], 1775)	1986
6396	*Scirpophaga praelata* (Scopoli, 1763)	2014
	Subfamily Scopariinae Guenée, 1854	
6172	*Scoparia pyralella pyralella* [Denis & Schiffermüller], 1775	2014
	= *dubitalis* (Hübner, 1796)	
	= *arundinata* Thunberg, 1792	
6174	*Scoparia ingratella ingratella* Zeller, 1846	2014
6163a	*Scoparia italica* Turati, 1919	2013
	= *manifestella italica* Turati, 1919	
	= *manifestella meridionalis* Klimesch, 1951	
6163	*Scoparia ganevi* Leraut, 1985	1986
	= *manifestella ganevi* Leraut, 1985	
	= *manifestella balcanica* Leraut, 1984 *nec* Rebel, 1917	
6168	*Scoparia ambigualis ambigualis* Treitschke, 1829	2015
6165	*Scoparia subfusca* Haworth, 1811 ssp. *zelleri* Wocke, 1855	2014
	= *cembrae* Haworth, 1811 [e.g., sensu Tuleshkov& Slivov (1975)]	
	= *cembrella* auct.	
	= *Eudorea zelleri* Wocke, 1855	
6167a	*Scoparia graeca* Nuss, 2005	2006
6166	*Scoparia basistrigalis* Knaggs, 1866	2014
6195	*Eudonia mercurella* (Linnaeus, 1758)	2014
	= *Scoparia frequentella* Stainton, 1849 sensu Reisser & Züllich, 1934	
6180	*Eudonia lacustrata lacustrata* 1804	1914
	= *Dipleurina lacustrata* (Panzer, 1804)	
	= *Eudonia crataegella* Hübner, 1796	
	= *Witlesia crataegella* (Hübner, 1796)	
6189	*Eudonia delunella delunella* Stainton, 1849	2012
6188	*Eudonia laetella* (Zeller, 1846)	1986
6183	*Eudonia petrophila* (Standfuss) ssp. *balcanica* Rebel, 1917	1930
6197	*Eudonia sudetica* (Zeller, 1839)	2014
6191	*Eudonia phaeoleuca phaeoleuca* Zeller, 1846	2014
6182	*Eudonia murana murana* Curtis, 1827	1933
6193	*Eudonia truncicolella* (Stainton, 1849)	2014
6162	*Cholius luteolaris* (Scopoli, 1772)	2010
	= *Cholius ochrealis* [Denis & Schiffermüller], 1775	
	= *Pyralis ochrealis* ([Denis & Schiffermüller], 1775)	
6178	*Anarpia incertalis incertalis* Duponchel, 1833	2014
	= *Anarpia pyrenaealis* (Duponchel, 1842)	
6176	*Gesneria centuriella* ([Denis & Schiffermüller], 1775)	2013
	Subfamily Heliothelinae Guenée, 1854	
6201	*Heliothela wulfeniana* (Scopoli, 1763)	[1988]
	= *Heliothela atralis* Hübner, 1788 nec Fabricius, 1775	
	Subfamily Cybalomiinae Marion, 1955	
6405	*Hyperlais dulcinalis* (Treitschke, 1835)	2014

	Subfamily Acentropinae Stephens [1836]	
6416	*Elophila nymphaeata* (Linnaeus, 1758)	2015
	= *Nausinoe nymphaeata* (L.) sensu Slivov, 1970	
6421	*Acentria ephemerella* ([Denis & Schiffermüller], 1775)	[1988]
	= *Acentropus nivea* Olivier, 1791	
6423	*Cataclysta lemnata* (Linnaeus, 1758)	2012
6425	*Parapoynx stratiotata* (Linnaeus, 1758)	2011
6427	*Parapoynx nivalis* ([Denis & Schiffermüller], 1775)	[1982]
6431	*Nymphula nitidulata* (Hufnagel, 1767)	[1982]
	= *stagnata* (Donovan, 1806)	
	Subfamily Odontiinae Guenée, 1854	
	Tribus Odontiini Guenée, 1854	
6435	*Metaxmeste phrygialis* Hübner, 1796	1980
	= *Titanio phrygialis* Hübner, 1796 sensu Drenowski (1925)	
6437	*Metaxmeste schrankiana* Hochenwarth, 1785	2010
	= *Titanio schrankiana* Hochenwarth sensu Drenowski (1925).	
6441	*Aporodes floralis* Hübner, 1809	2014
	= *Noctuelia floralis* Hübner, 1809	
6446	*Cynaeda dentalis* ([Denis & Schiffermüller], 1775)	2013
6447	*Cynaeda gigantea* Staudinger, 1890	[1985]
	= *Cynaeda gigantea* (Wocke, 1871) e.g., sensu Karsholt & Razowski, 1996 nomen nudum	
	= *Cynaeda hilariella* Schawerda, 1921	
6464	*Cynaeda pustulalis* (Hübner, 1823)	2013
	= *Epascestria pustulalis* (Hübner, 1823)	
6452	*Tegostoma comparalis* (Hübner, 1796)	[1988]
6466	*Ephelis cruentalis* (Geyer, 1832)	2015
	= *Phlyctaenodes cruentalis* Hübner sensu Slivov (1970)	
6468	*Atralata albofascialis* (Treitschke, 1829)	2007
	= *Atralata minutalis* Speyer, 1868	
6470	*Titanio normalis* (Hübner, 1796)	[1986]
	Tribus Eurrhypini Leraut & Luquet, 1983	
6478	*Eurrhypis pollinalis* ([Denis & Schiffermüller], 1775)	2006
6480	*Eurrhypis cacuminalis* (Eversmann, 1843)	1929
	Subfamily Glaphyriinae Forbes, 1923	
6484	*Evergestis sophialis* (Fabricius, 1787)	2015
6486	*Evergestis caesialis* (Herrich-Schäffer, 1849)	1986
6488	*Evergestis frumentalis* (Linnaeus, 1761)	2015
6490	*Evergestis segetalis* (Herrich-Schäffer, 1851)	2015
6491	*Evergestis serratalis* (Staudinger, 1870)	2014
6493	*Evergestis desertalis* (Hübner, 1813)	1931
6497	*Evergestis forficalis* (Linnaeus, 1758)	2015
6499	*Evergestis extimalis* (Scopoli, 1763)	2011
6500	*Evergestis limbata* (Linnaeus, 1767)	2013
6501	*Evergestis pallidata* (Hufnagel. 1767)	2012
	= *Evergestis straminalis* Hübner, 1793, sensu Reisser & Züllich, 1934	
6503	*Evergestis politalis* ([Denis & Schiffermüller], 1775)	2011
6504	*Evergestis dilutalis* (Herrich-Schäffer, 1848)	1930
6505	*Evergestis subfuscalis* (Staudinger, 1870)	2011
6506	*Evergestis mundalis* (Guenée, 1854)	2012
6507	*Evergestis aenealis* ([Denis & Schiffermüller], 1775)	2014
6511	*Evergestis alborivulalis* (Eversmann, 1843)	2014
	= *Rescovitsia alborivulalis* (Eversmann, 1843)	
6513	*Orenaia alpestralis* (Fabricius, 1787)	2010
6521	*Hellula undalis* (Fabricius, 1781)	2009
	Subfamily Pyraustinae Meyrick, 1890	
6566	*Loxostege turbidalis* (Treitschke, 1829)	[1988]
6569	*Loxostege clathralis* (Hübner, [1813] 1796) nec Duponchel, 1832	2014
6567	*Loxostege virescalis* (Guenée, 1854)	2010
	= *clathralis* Duponchel, 1832, nec Hübner, 1813	
6568	*Loxostege deliblatica* Szent-Iványi & Uhrik-Mészáros, 1942	2013
	= *Margaritia sulphuralis* (Hübner, 1813)	
	= *Margaritia huebneri* Koçak, 1980)	
6574	*Loxostege aeruginalis* (Hübner, 1796)	2011

6575	*Loxostege mucosalis* (Herrich-Schäffer, 1848)	2011
	= *Margaritia mucosalis* (Herrich-Schäffer, 1848)	
6577	*Loxostege sticticalis* (Linnaeus, 1761)	2014
	= *Margaritia sticticalis* (Linnaeus, 1761)	
6580	*Loxostege manualis* (Geyer, 1832)	[1988]
	= *Boreophila manualis* (Geyer, 1832)	
	= *Boreophila manualis* Hübner, *sensu* Drenowski (1925)	
6588	*Ecpyrrhorrhoe rubiginalis* (Hübner, 1796)	2014
6590	*Ecpyrrhorrhoe diffusalis* Guenée, 1854	2014
	= *Harpadispar diffusalis* (Guenée, 1854)	
6583	*Achyra nudalis* (Hübner, 1796)	[1988]
6561	*Paracorsia repandalis* ([Denis & Schiffermüller], 1775)	2014
6660	*Paratalanta pandalis* (Hübner, 1825)	2010
6661	*Paratalanta hyalinalis* (Hübner, 1796)	2015
	= *Microstega hyalinalis* (Hübner, 1796)	
6597	*Pyrausta virginalis* (Duponchel, 1832)	2014
6600	*Pyrausta castalis* (Treitschke, 1829)	2014
6599	*Pyrausta sanguinalis* (Linnaeus, 1767)	2015
6601	*Pyrausta despicata* (Scopoli, 1763)	2014
	= *cespitalis* ([Denis & Schiffermüller], 1775)	
6609	*Pyrausta obfuscata* (Scopoli, 1763)	[1988]
6611	*Pyrausta amatalis* Rebel, 1903	[1885]
6603	*Pyrausta porphyralis* ([Denis & Schiffermüller], 1775)	[1988]
6604	*Pyrausta aurata* (Scopoli, 1763)	2015
6607	*Pyrausta falcatalis* Guenée, 1854	[1988]
6605	*Pyrausta purpuralis* (Linnaeus, 1758)	2015
6606	*Pyrausta ostrinalis* (Hübner, 1796)	2014
6613	*Pyrausta nigrata* (Scopoli, 1763)	2010
6595	*Pyrausta cingulata* (Linnaeus, 1758)	2014
	= *nigralis* Fabricius, 1781 nec Hübner, 1793	
	= *Pyrausta rectefascialis* Toll, 1936	
6614	*Pyrausta coracinalis* Leraut, 1982	[1988]
	= *nigralis* Hübner nec Fabricius, 1781	
6616	*Pyrausta (Panstegia) aerealis* (Hübner, 1793)	2010
6619	*Uresiphita gilvata* (Fabricius, 1794)	2013
	= *Pyralis polygonalis* [Denis & Schiffermüller], 1775 (synonymy)	
	= *polygonalis* auct. *nec* [Denis & Schiffermüller], 1775 (misidentification)	
	= *limbalis* auct. *nec* Linnaeus, 1767 (misidentification)	
6620	*Nascia cilialis* (Hübner, 1796)	2011
6623	*Sitochroa palealis* ([Denis & Schiffermüller], 1775)	2014
6624	*Sitochroa verticalis* (Linnaeus, 1758)	2014
6626	*Euclasta splendidalis* (Herrich-Schäffer, 1848)	2014
6641	*Sclerocona acutella* (Eversmann, 1842)	2011
6647	*Ostrinia palustralis* (Hübner, 1796)	2014
6645	*Ostrinia quadripunctalis* ([Denis & Schiffermüller], 1775)	1986
6649/a	*Ostrinia nubilalis* (Hübner, 1796) / *O. scapulalis* (Walker, 1859)	2014
	= *maysalis* Leraut, 2012	
6643	*Psammotis pulveralis* (Hübner, 1796)	2014
6656	*Anania funebris* (Ström, 1768)	[1988]
6655	*Anania verbascalis* ([Denis & Schiffermüller], 1775)	2014
6629	*Anania lancealis* ([Denis & Schiffermüller], 1775)	2014
6631	*Anania coronata* (Hufnagel, 1767)	2012
	= *Phlyctaenia sambucalis* ([Denis & Schiffermüller], 1775)	
6632	*Anania stachydalis* (Germar, 1821)	2012
6638	*Anania terrealis* (Treitschke, 1829)	2014
6652	*Anania crocealis* (Hübner, 1796)	2014
6653	*Anania testacealis* (Zeller, 1847)	1995
6658	*Anania hortulata* (Linnaeus, 1758)	2012
	= *Eurrhypara urticata* (Linnaeus, 1761)	
6563	*Anania fuscalis* ([Denis & Schiffermüller], 1775)	2014
	Subfamily Spilomelinae Guenée, 1854	
6531	*Udea ferrugalis* (Hübner, 1796)	2014
6533	*Udea fulvalis* (Hübner, 1809)	2004
	= *Udea prunoidalis* Staudinger, 1879	

6535	*Udea fimbriatralis* (Duponchel, 1834)	[1988]
	= *fimbriatalis* auct., misspelling	
6534	*Udea languidalis* (Eversmann, 1842)	2009
6538	*Udea lutealis* (Hübner, 1809)	2014
	= *Pionea lutealis* Hübner, 1809	
6541	*Udea prunalis* ([Denis & Schiffermüller], 1775)	2011
6557	*Udea olivalis* ([Denis & Schiffermüller], 1775)	2006
6548	*Udea rhododendronalis* (Duponchel, 1834)	2010
6549	*Udea austriacalis* (Herrich-Schäffer, 1851)	1979
6550	*Udea uliginosalis* (Stephens, 1834)	2013
6553	*Udea nebulalis* (Hübner, 1796)	1988
	= *Edea nebulalis* (Hübner, 1796)	
6551	*Udea numeralis* (Hübner, 1796)	2004
6667	*Pleuroptya ruralis* (Scopoli, 1763)	2014
	= *Haritalia ruralis* (Scopoli, 1763)	
	= *Sylepta ruralis* (Scopoli, 1763)	
6668	*Pleuroptya balteata* (Fabricius, 1798)	2010
	= *Pleuroptya crocealis* (Duponchel, 1834)	
	= *Pleuroptya aurantiacalis* (Fischer von Röslerstamm, 1840)	
6672	*Mecyna flavalis* ([Denis & Schiffermüller], 1775)	2012
— —	*Mecyna balcanica* Slamka & Plant 2016	2015
6674	*Mecyna trinalis* ([Denis & Schiffermüller], 1775)	2013
6675	*Mecyna biternalis* (Mann, 1862)	1933
6677	*Mecyna asinalis* (Hübner, 1819)	1981
6678	*Mecyna subsequalis* (Herrich-Schäffer, 1851)	[1925]
6680	*Agrotera nemoralis* (Scopoli, 1763)	2013
6682	*Diasemia reticularis* (Linnaeus, 1761)	2012
	= *Diasemia litterata* (Scopoli, 1763)	
6684	*Diasemiopsis ramburialis* (Duponchel, 1834)	2010
6697	*Amaurophanes stigmosalis* (Herrich-Schäffer, 1848)	2014
	= *Dolicharthria stigmosalis* (Herrich-Schäffer, 1848)	
	= *Stenia stigmosalis* (Herrich-Schäffer, 1848)	
6700	*Dolicharthria punctalis* ([Denis & Schiffermüller], 1775)	2014
	= *Stenia punctalis* ([Denis & Schiffermüller], 1775)	
6702	*Dolicharthria bruguieralis* (Duponchel, 1833)	2014
	= *Stenia bruguieralis* (Duponchel, 1833)	
6704	*Antigastra catalaunalis* (Duponchel, 1833)	1995
6688	*Spoladea recurvalis* (Fabricius, 1775)	2009
6691	*Hodebertia testalis* (Fabricius, 1794)	1995
	= *Palpita incoloralis* Guenée, 1854)	
6690	*Palpita vitrealis* (Rossi, 1794)	2014
	= *Palpita unionalis* (Hübner, 1796)	
— —	*Cydalima perspectalis* (Walker, 1859)	2014
6695	*Synclera traducalis* (Zeller, 1852)	1979
6524	*Hydriris ornatalis* (Duponchel, 1832)	2014
6707	*Metasia suppandalis* (Hübner, 1823)	2014
6710	*Metasia (Metasia) carnealis* (Treitschke, 1829)	[1988]
6713	*Metasia (Metasia) rosealis* Ragonot, 1895	2010
6715	*Metasia (Clasperia) ophialis* (Treitschke, 1829)	2015
6719	*Nomophila noctuella* ([Denis & Schiffermüller], 1775)	2014

List 4. Catalogue of Pyraloidea (Pyralidae and Crambidae) recorded in Bulgaria

This list discusses 405 pyraloid taxa, comprising both the 390 valid taxa in List 3 and the 15 deleted species. Any species not included here may be assumed to have been overlooked by me and I would appreciate any such data being e-mailed to me for inclusion in any future revision.

PYRALIDAE LATREILLE, 1809

Subfamily Galleriinae ZELLER, 1848

REBEL (1903) listed five species in what is now regarded as subfamily Galleriinae. GANEV (1983) lists seven species, with the subfamily divided into three Tribes. However, the inclusion of *Corcyra cephalonica* (STAINTON, 1866) for Bulgaria is in error: the type locality for *Melissoblaptes oeconomellus* MANN, 1872, a synonym of *cephalonica* STAINTON is "Tultscha, Bulgarien", which in reality is modern day Tulcea in the Danube Delta area of Romania. After deletion of this species, we are left with six species of Galleriinae for Bulgaria.

Tribus Tirathabini WHALLEY, 1964

5569 ***Aphomia sociella* (LINNAEUS, 1758)**

16 records: 1931 – 2011

Apparently a scarce species in Bulgaria, with very few records, of which even fewer relate to the present century. It does not seem to be mentioned in the published literature for Bulgaria until TULESHKOV (1932) includes it is his list for the West Balkan Mountains [in the general area of Belogradchik] on 12.VII.1931. Interestingly, it may have always been fairly scarce. SLIVOV (1970) remarks that "This rare species was found at Cherepish, 2.VI. 1964 – 1♂ near the monastery buildings and at Bov, 1♂ at light on 22.VII.1964". Indeed, these provide the first Bulgarian reports. Since then GANEV (1983) listed it as having been found at Belasitsa Mountain, Kresna Gorge, Bunkera in the Vitosha Mountains, near Tran at Tsegrilovtsi, Skakavitsa in the Zemen Gorge, Slavyanka Mountains, Melnik, Kostenets and in the Pirin Mountains. More recently it is known from Madzharovo, 11.VIII.2003, DAVEY (in BESHKOV & LANGOUROV, 2004), from near the Kongur Chalet, 7.VII.2010, leg. BESHKOV and in the West Rhodopes Mountains above Golyamo Belovo at Yadenitsa, 873 m., 15.VII.2011, leg. BESHKOV. These combine to give a recorded adult flight period from early June (2nd) to mid August (11th).

The larvae feed as inquilines in the nests of social Hymenoptera. They are recorded in bee hives but in the wild tend to prefer nests of *Bombus* species.

[5573 ***Aphomia* (= *Melissoblaptes) unicolor* (STAUDINGER, 1880)**

There is reference to a female *Aphomia* (= *Melissoblaptes) unicolor* (STAUDINGER, 1880) at Sofia in REBEL (1903) and repeated without explanation in GANEV (1983). Taxonomic opinion varies on whether this is a valid species or a subspecies of *Lamoria anella* (DENIS & SCHIFFERMÜLLER). There is also a suggestion that this particular specimen is merely a pale form of the nomino-typical subspecies *anella*, since *unicolor* is found along the Mediterranean coast in North Africa. However, it does extend north into Greece and it is not impossible for it to reach western Bulgaria. I have not been able to find the specimen and so the taxonomic issues are academic. For the time being I treat this as an unconfirmed taxon for the Bulgarian fauna, and so place this entry in square brackets.]

5574 ***Lamoria zelleri* (JOANNIS, 1932)**
= *Melissoblaptes zelleri* JOANNIS, 1932
= *Aphomia zelleri* (JOANNIS, 1932)
= *Melissoblaptes bipunctanus* ZELLER 1848 nec Curtis (sensu Tuleshkov, 1930)

36 records: [1903] – 2013

Confusion is possible with the next species, *Lamoria anella* (DENIS & SCHIFFERMÜLLER), but the few specimens that I have been able to check are correctly named and there is no particular reason to doubt the rest. The moth seems to be extremely local and it is evidently absent from several sites where fairly regular light trapping has been undertaken. Modern records are sparse as the distribution map clearly indicates. The records are distributed in both upland areas and in the lower coastal zone and although depressingly few records include altitude it is evident that the species can extend a significant distance up mountains, with records from Trigrad at 1250 m. and in the Rila Mountains at 1400 m.. Records run from the end of May (25th) to late August (27th) but the moths are not flying continuously. Regrettably, there are too few date records to assess the flight period adequately, but there appears likely to be a small emergence in May and early June and then a much larger one in July and August.

The larvae are supposed to feed on mosses of the genus *Brachythecium*, with *Brachythecium albicans* specifically mentioned, but there are also reports on grasses (*Ammophila*) in coastal areas and LERAUT (2014) alludes to larvae found

in bumble bee nests, though this may be a purely coincidental association; it is evident that there is scope for research in this area. In sandy places, such as coastal dunes in Britain, the larvae live in a vertical silken tube extending about 100 mm into the sand, overwintering in the larval stage and pupating in the tube just below the surface.

5578 *Lamoria anella* ([Denis & Schiffermüller], 1775)

42 records: [1903] – 2013

This species is widespread but rather local, and occasionally appears at light traps in large number. Our earliest record, unsurprisingly, is given by Rebel (1903) who states "With *Melissoblaptes bipunctatus* in Rila (Haberhauer) and Sliven (Rebel) coming to lamp light, but much less frequently than the former type I saw a dark example from Vitosha (Drenowski). There is an example from Sofia, 3.VII.1904, leg. Buresch, in coll. NMNHS and it is likely that the reference in Buresch (1908) that "I have some caught in July 1904 at electric lamps" refers to this material. Modern records are from the southern mountains and from the coastal strip, perhaps suggesting that the numerous small dots in the distribution map, indicating older records, might be updated if sufficient recording effort is expended.

Ganev (1983) reports "Imago from May to September"; according to the database, adults are positively recorded from early June (6th) to late August (27th) with a distinct peak of reports in July and any data that Ganev may have had for flight in May appears to have been lost.

[5584 *Aphomia* (= *Corcyra*) *cephalonica* (Stainton, 1866)

1 record: 1872 – 1872

In the original description of *Melissoblaptes oeconomellus* (the same species as *Corcyra cephalonica*) by Josef Mann (1972), the Type Locality is given as "Tultscha, Bulgarien". Whalley (1964) in his review of Galleriinae, refers to "Bulgaria. Type not traced, not in Nat. Hist. Mus. Vienna, probably destroyed". However, Tultscha is in fact modern-day Tulcea, a town in the Danube Delta area of Romania, so the inclusion of this species in the Bulgarian fauna by Ganev (1983) and Slamka (2006) is "politically incorrect". It is now formally deleted.]

Tribus Galleriini Zeller, 1848

5587 *Achroia grisella* (Fabricius, 1794)

3 records: [1903] – 2010

Ganev (1983) reports this evidently very scarce species from Sadovo, near Plovdiv and from Sliven, adding the words "*imago in June*" but providing no more information. Presumably, the Sliven record is the same as that given by Rebel (1903). There are no other reports until 2010, when I found 1♂ amongst samples provided by Beshkov & Zlatkov collected by them at Tuzlata, 15.IX.2010; this is the only modern record. It is a fairly indistinct moth and may be overlooked, but the intensive collecting of Pyraloidea from light traps in the past few years suggests that it is rare, at least in light trap samples.

The larvae feed inside bee hives, tunnelling through the honey comb and causing significant damage to honey production. In Britain, it is known as the Lesser Wax Moth.

5589 *Galleria mellonella* (Linnaeus, 1758)

37 records: [1903] – 2014

Known in Britain as the Wax Moth, the larvae of this species also feed on the honeycomb inside bee hives and may become pests. However, they are also found in bumblebee nests and this less specific habitat requirement is perhaps a reason for them being more widespread than *Achroia grisella* in Bulgaria; that said, a consideration of the distribution map shows that higher altitude areas are avoided. Rebel (1903) provides the first report for the country with "an example from the Vitosha Mountains, leg. Drenowski, det. Rebel". Buresch (1908) states "Sofia district, in June and July, rare" and there is a specimen labelled "Sofia, 8.VII.1915, leg. Buresch" in coll. NMNHS. Ganev (1983) summarised previous localities known to him at that date – Peshtera, Velingrad, Trigrad, Kozhuh, Kyustendil, Kresna Gorge, Bunkera, Tsegrilovtsi near Tran, Skakavitsa, Lyulin Mountains, Boinitsa, Slavyanka Mountains, Svilengrad, Sliven, Razgrad, Ivanski, Aitos, Burgas, Euxinograd and Silistra. Modern records are widely scattered suggesting that the moth is present across much of Bulgaria in low density. These recent reports are from Kavarna in 2009, from Dryanovo Monastery and Krichim in 2011, Lakatnik, Dolni Varpishta, the Ticha Dam and Karadere in 2012 and finally Cape Kaliakra in 2014.

The records show adults flying in Bulgaria from late June (20th) until late October (22nd), but most reports fall between third week of July and early September. It seems probable that there are two, or perhaps three generations, but more information is needed to determine the correct situation.

Subfamily Phycitinae Zeller, 1839

Tackling the Phycitinae has been something of a daunting task. A large proportion of the species are notoriously difficult to identify and for a large section within the Phycitini there is practically no literature apart from widely-scattered papers in an equally wide range of journals. Indeed, the taxonomic status of some species is itself not fully defined. An extremely experienced friend of mine, who is an acknowledged authority in a different family of microlepidoptera, commented to me that the phycitines "all look the same to me"! In reality, he is not far wrong and whilst freshly emerged, laboratory reared imagines might bear distinctive features these can be lost quite rapidly on wild examples collected in moth traps. Further, in at least one internationally important museum, the collection of pinned Phycitini frequently includes more than one species under a given species label (though, hopefully, this is no longer the case with the National Collection at Sofia (NMNHS) which I have critically examined myself). This means, in practical terms, that there are not really any reliable collections of reference material so that in extreme cases reference to type specimens is the only sensible approach. With extremely few exceptions, identifications of Phycitinae in the inventory below have been confirmed by examination of the genital apparatus; this includes material that I have named myself (the bulk of the data) and data that has been received from other persons. However, it should be noted that this does not necessarily mean that a microscope slide is available for every specimen, since in many cases, especially when merely confirming an identification based on overall morphology, the genitalia have simply been glued to a card on the pin using a water soluble glue.

Tribus Cryptoblabini Roesler, 1968

5668 *Cryptoblabes bistriga* (Haworth, 1811)

2 records: [1903] – 1982

Only two examples of this species are reported for Bulgaria, both in the south-west quarter of the country. Rebel (1903) mentions an example from Vitosha; the date is not stated, but the implication appears to be that it was made by Rebel himself "recently". The second report is provided by Ganev (1984) who gives "Belasitsa, 16.VI.1982" – perhaps implying that the record was made by himself. The Fauna Europaea website, accessed January 2016, shows it as widely distributed across almost all of Europe, but for reasons that are not given states unambiguously that it is absent from Greece. There appears to be no particular reason why this species should not be more widely distributed in the forested and other wild areas of Bulgaria. Adults fly May to July.

Elsewhere in Europe the larvae feed on the leaves of various trees, from within a folded leaf August to October. Hosts include *Quercus*, *Alnus* and also lower bushes such as *Myrica*.

Tribus Phycitini Zeller, 1839

5673 *Trachonitis cristella* ([Denis & Schiffermüller], 1775)

6 records: 1964 – 2014.

This species is widely spread across all of Europe apart from the British Isles and Fenno-Scandia; interestingly, the map at Fauna Europaea also shows the moth as definitively absent from Bulgaria and so other absences indicated may or may not be correct. Older Bulgarian records, which ought to be on the Fauna Europaea maps, are from the Iskar Gorge, from where it is reported near Mezdra, 16.VII.1964, 1♂ in the evening from the bushes, "new to the Bulgarian fauna" (Slivov, 1970) and Brusen village, 1♂ at electric light on 21.VI.1965 (Slivov, 1970). Sakalian (2000a) lists it without date for the Botev area of the Central Balkan National Park; presumably the record post-dates those of Slivov. In the south-west it was found in the Skrino River valley at an altitude of 430 m., on 24.V.2002 (Plant et al., 2003) and more recently in samples from light traps at Ilindentsi, 515 m., 1♂ 18.VI.2013, leg. Zlatkov, Beledie Han, 2♂ 5.VII.2013, leg. Beshkov and near Drakulovo village, Pirin Mountains, 20.V.2014, leg. Beshkov. Interestingly, as the distribution map indicates, all known records are from the western strip of the country, with none in particularly mountainous areas. Adults are on the wing in Bulgaria from April to September in two generations.

The larvae feed on *Prunus spinosus*, *Pyrus*, *Euonymus europaeus* and *Betula* in a silk web on the leaves, those arising from autumn adults over-wintering to pupate in the spring.

5676 *Salebriopsis albicilla* (Herrich-Schäffer, 1849)

1 record: 1982.

This is a species of woodland and scrubland, flying from May to July in places throughout Europe. The only report from Bulgaria, however, is from Belasitsa, 16.VI.1982 (Ganev, 1984) in the extreme south-west.

The larvae feed elsewhere in Europe in rolled leaves of *Tilia cordata*, and less frequently on *Alnus*, *Salix* and *Corylus* from July to September.

Genus *Elegia* Ragonot, 1887

The discovery of *Elegia fallaximima* (Nel & Mazel, 2011) led to a realisation that there was some nomenclatural confusion concerning *Elegia fallax* (Staudinger, 1881) and *E. atrifasciella* (Ragonot, 1887). Sterling & Costen (2005) point out that the male genitalia figures of *E. fallax* and *E. atrifasciella* are transposed in the 1997 edition of Slamka's Central European book (Slamka, 1997), compared with the earlier edition (Slamka, 1995). Tokar, Slamka & Pastoralis (1996) show male genitalia of *atrifasciella* that correspond with those of *E. fallax*, which agrees with Slamka (1995) but not with Slamka (1997). In his 2010 revision of the Central European book, Slamka synonymises *E. atrifasciella* with *E. fallax*. The correct synonymy is as follows:

Elegia fallax (Staudinger, 1881)
= *atrifasciella* Ragonot, 1887
= *atrifasciella* sensu Slamka, 1995 (nec Slamka, 1997)
= *fallax* sensu Slamka, 1997 (nec Slamka, 1995)

Elegia fallaximima Nel & Mazel, 2011
= *fallax* sensu Slamka, 1995 (nec 1997)
= *atrifasciella* sensu Slamka, 1997 (nec Slamka, 1995)
=*fallax* sensu Corley, 2004

To date, there are no reports of *E. fallaximima* outside the Iberian Peninsula, although equally there are no reasons to suppose that it will be confined to that region. This present review relies on examination of genital characters for the safe identification of all material.

5678 *Elegia fallax* (Staudinger, 1881)

26 records: 1930 – 2013

Elegia fallax is widely distributed throughout southern and central Europe where it is associated with deciduous *Quercus*, flying from April to August. The earliest known Bulgarian records are from Kresna, 17.VII.1930, 1♀, Tuleshkov leg., then Strandzha Mountains, 16.V.1931, 1♂, leg. Tuleshkov, both specimens found by me during 2014 in NMNHS and genitalia dissected. It is also noted (as *atrifasciella* Dren.), from nearby Lilyanovo, 900 m., 22-27.VII.1933 (Reisser & Züllich, 1934). Modern reports are from a wide range of localities, affecting the southern third and eastern half of the country, but are rather few in number and as the distribution map shows, rather widely separated (all material dissected by myself). There are 17 species of *Quercus* in Bulgaria (Assyov, 2012), six of them with limited distribution and deciduous *Quercus* forests, remnants of cut forests and single trees are widespread across the country, in the mountains up to 1000 m. There are large *Quercus*-dominated forests in the north-eastern part of Bulgaria and smaller ones elsewhere, but truly ancient *Quercus* forests are rare (Zlatkov, pers. comm.). The moth can be expected to occur in many other localities.

5679 *Elegia similella* (Zincken, 1818)

15 records: 1929 – 2013

Freshly emerged adults of *E. similella* may often be separated from those of *E. fallax* by the unaided eye, but worn examples, especially rubbed specimens from the bottoms of moth traps, present difficulties; routine dissection of the genitalia is called for and ideally all future records should be confirmed in this manner. The bulk of the confirmed records are from across the south-west of the country where stations for the moth appears to be widespread, if somewhat localised. Altitude is not presented for all reports, but the moth is certainly present up to 1000 m., having been recorded at Belasitsa, 22.VII.1930, leg. Tuleshkov (in coll. NMNHS). Away from the south-west there are positive reports (confirmed by genitalia examination) from Tsar Petrovo, Vidin, 1♂, 22.IV.2012, leg. S. Beshkov and between Alfatar and Vasil Levsky, Silistra, 1♀, 23.VIII.2012, leg. S. Beshkov. It is likely that this moth will prove to affect a rather greater area of the country if sufficient recording effort is deployed; whether or not its scarcity in comparison with *E. fallax* (Staudinger) is real or artificial remains an open question, but the bulk of the country lacks any record.

There are no Bulgarian larval records; elsewhere in Europe the larvae feed on the leaves of deciduous *Quercus* species so that both this and the previous species are likely to occur together.

5684 *Matilella fusca* (Haworth, 1811)
= *Pyla fusca* (Haworth, 1811)
= *Salebria fusca* Hw.

12 records: 1910 – 2013

The genus *Matilella* was created by Leraut (2001) to accommodate the taxon formerly known as *Pyla fusca* (Haworth, 1811). Drenowski (1925) records this species, as *Salebria fusca* Hw., between 1600 and 1900 m. in the Stara Planina and Rhodopes Mountains. It was reported again at the former locality from the Botev area of the Central Balkan National Park

by SAKALIAN (2000a), though without dates. TULESHKOV & SLIVOV (1975) refer to this as being the subalpine belt, but the moth is not confined to this zone and may also be found in lowland sites. Sadly, neither of these localities are defined in sufficient detail to permit them being represented io the distribution map. There are more recent reports from the Western Rhodopes at the Rozen Pass, 13.VII.1981, Chepelare, 5.VIII.1981 and Izgrev, 31.VII.1982 (GANEV, 1984). It is noted from Kresna (SOFFNER, 1967) and from Rila at Belmeken, 1♂, 4.VIII.2010 BESHKOV leg., from Slavyanka near Paril village, 750 m., 7.VIII.2013, PLANT leg. and Zemen Mountain at Polska Skakavitsa village, 690 m., 23.V.2002 (PLANT et al., 2003). The distribution map shows a species that is, possibly, restricted to the south-west of Bulgaria, although it might not be overly-surprising to discover examples in the Rhodopes and Strandzha regions as well.

The larvae feed on *Erica* and *Vaccinium* species, of which the former is found in very few localities in south-east although the latter is more widespread at higher altitudes (B. ZLATKOV, pers. comm.). Whilst the moth is likely to be found if one or both of these foodplants are available it is possible that other foodplants might be utilised in Polska Skakavitsa and Paril?

5770 ***Moitrelia obductella* ZELLER, 1839**
= *Pempelia obductella* ZELLER, 1839

17 records: 1911 – 2014

The genus *Moitrelia* was introduced by LERAUT (2001), to accommodate the taxa *obductella* ZELLER, 1839, *hispanella* ZELLER, 1859, *morocanella* LUCAS, 1932, *thymiella* ZELLER, 1836, *boeticella* RAGONOT, 1887 and *italogallicella* MILLIÈRE, 1883. The available records show that this is a scarce but widely distributed species in Bulgaria, with modern records from the south-western mountainous region and the Stara Planina and with older reports from the coastal zone at Balchik, 1♀ on 29.VII.1933 (POPESCU-GORJ). The earliest record is for Sliven, 14.VII.1911, leg. TSCHORBADJIEV, in coll. NMNHS, seen by myself. Adults are on the wing from 14 July to 15 August and then after a gap of about 3 weeks there are two later reports, from 5 and 7 September. There is also a Bulgarian specimen of this species in the Rome Museum (ZILLI, pers. comm.) that I have not yet been able to examine.

Elsewhere in Europe, the larvae feed on *Origanum* (including *Origanum vulgare*), *Mentha*, *Calamintha* and *Thymus* species. They live in a silk web on the terminal shoot of their host plant. The web incorporates dead leaves and the larva hibernates within, pupating the following July in a papery cocoon amongst leaf-litter.

5696 ***Moitrelia placidella* (ZERNY, 1929) comb. nov.**
= *Pempeliella alibotuschella* (DRENOWSKI, [1932] 1931) syn. nov.
= *Delplanqueia nobilella* sensu LERAUT, 2014 partim, nec *nobilella* RAGONOT, 1887

5 records: 1930 – 2013

LERAUT (2001) created the new genus *Delplanqueia* to accommodate several species that were until then placed in *Pempeliella* CARADJA, 1916. The taxa *ornatella* DENIS & SCHIFFERMÜLLER, 1775), *ardosiella* RAGONOT, 1887 and *sororiella* ZELLER, 1839, were specifically retained within genus *Pempeliella*. ZLATKOV & PLANT (2013) illustrated the genitalia of *alibotuschella* DRENOWSKI, 1932 and suggested that it was correctly assigned to *Pempeliella*. It was a surprise, therefore, to discover that LERAUT (2014), subsequently synonymised *alibotuschella* DRENOWSKI, 1932 with *nobilella* RAGONOT, 1887 and thus assigned both to *Delplanqueia*. This action spurred a more detailed examination of the taxa included within both *Pempeliella* and *Delplanqueia* and in particular an examination of the everted vesica of males in the group. This exercise revealed two primary conclusions – first that the separation by LERAUT of *Delplanqueia* from *Pempeliella* is supported as a valid taxonomic action but second that the taxon *alibotuschella* belongs to neither genus. Examination of both male and female genitalia and in particular the everted vesica of the male aedeagus (Fig. 7) shows that the taxon *alibotuschella* DRENOWSKI, 1932 in fact belongs to genus *Moitrelia* LERAUT, 2001.

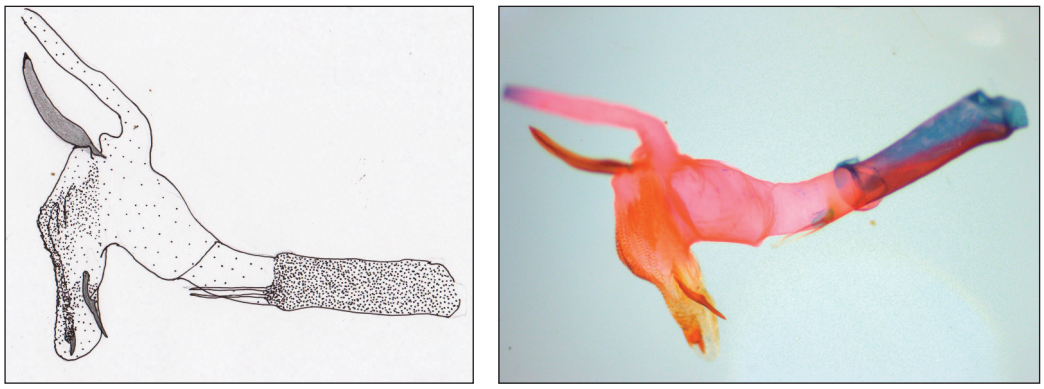


Fig. 7: Everted vesica of aedeagus of lectotype of *Moitrelia alibotuschella*
Drawing (left): C. W. PLANT. Photograph (right), dissection & vesica eversion all by B. ZLATKOV.

The genus *Moitrelia* was created by LERAUT (2001), who commented that "Avec sa nervation caractéristique aux ailes postérieures Cu1 + M2 + M3 tigées (et non fusionnées), son édéage court, avec deux cornuti principaux, ses pailles anales pointues et sa bourse dotée d'épines médianes, ce genre se distingue aisément de "Pempeliella". Le type d'ornamentation de l'aile antérieure et la structure des genitalia femelles les y apparent". [The characteristic hind wing venation, with Cu1 + M2 + M3 stalked (and not merged), the short aedeagus with two main cornuti, the pointed anal papillae and bursa equipped with median thorns, readily distinguish this genus from *Pempeliella*. The pattern of the forewing and the structure of the female genitalia are diagnostic].

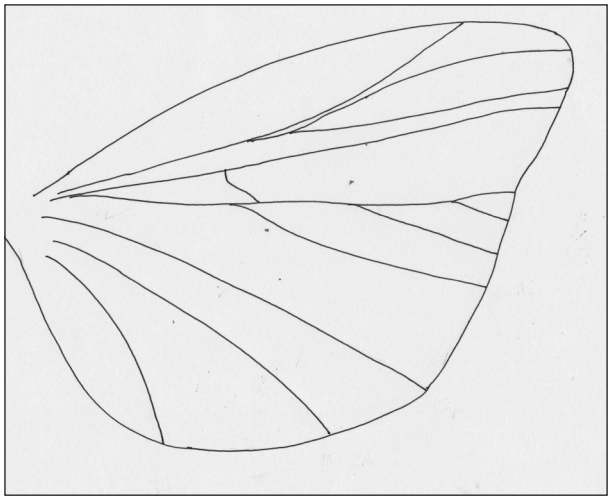


Fig. 8: Hind wing of male *Moitrelia alibotuschella* from Bulgaria, 2013

It is clear from the image at Fig. 8 that the hind wing venation complies with this; indeed the hind wing venation of *Pempeliella alibotuschella* DRENOWSKI and *Moitrelia obductella* ZELLER (the type species of the genus) are identical. This information, combined with the structure of the genitalia on both sexes supports my contention and accordingly, the taxon *alibotuschella* is now formally transferred to genus *Moitrelia* LERAUT, 2001. Additionally, FRANTIŠEK SLAMKA (pers. comm.) has examined type material of *Pempeliella placidella* ZERNY, 1929 and has discovered that is the same species as *Pempeliella alibotuschella* DRENOWSKI, 1932. The correct nomenclature is, therefore:

Moitrelia placidella (ZERNY, 1929) **comb. nov.**
= *Pempeliella alibotuschella* (DRENOWSKI, [1932] 1931) **syn. nov.**

I am grateful to Dr SLAMKA for permission to make first mention of this synonymy. Although I have not had any opportunity to examine any specimen of RAGONOT's *nobilella*, it is my view that LERAUT's synonymisation of *alibotuschella* with *nobilella* is unsafe and calls for closer investigation. In particular, using LERAUT's own drawing of the male genitalia of *nobilella* the following anomalies are apparent:

- *nobilella* has a truncated, perhaps slightly concave, uncus whilst that of *alibotuschella* is acute;
- The valvae of *alibotuschella* are slightly wider at the apex than at the base; those in LERAUT's drawing of *nobilella* are wider at the base and narrower at the apex;
- The vinculum in LERAUT's drawing of *nobilella* is slightly too short in comparison with that of *alibotuschella;*
- The transtilla is different in each taxon.

ZLATKOV & PLANT (2013) noted that the taxon *alibotuschella* was, at that date, known only from the type material collected in 1930 and from two males collected in 2012. The translation of the 1932 description reads: "I caught two absolutely fresh and pure female specimens, of which the great specialist lepidopterist Prof. Dr H. REBEL said that they belong to a 'new and beautiful species'. It flies at Alibotush, near Border Post No. 1 on the northern slopes, at altitude of 1000-1500 m, south of Paril village, at the beginning of August 1930". One of the two syntypes is in coll. NMNHS Sofia (NMNHSINV 0306), labelled (in German, in DRENOWSKI's handwriting), "Alibotush mountain in NE Macedonia"; this was re-designated as Lectotype by ZLATKOV & PLANT (2013), who also provided the first description of the male. It is presumed that the second specimen is lost; DRENOWSKI deposited his collection in Skopje, not in Sofia, and the collections here were destroyed. The type locality is at 1500 m. altitude. Two males were collected in the same general area, in the valley between Alibotush (now called Slavyanka) Mountain and Pirin Mountain at Nova Lovcha, 9.VIII.2012 by ZLATKOV, at the lower altitude of 820 m. and earlier he also caught it at Ada Tepe, Kardzhali, 380 m., 1♀, 5.VIII.2010, leg. B. ZLATKOV. Since the publication of ZLATKOV & PLANT (2013), another record has surfaced, from the East Rhodopes Mountains at Studen Kladenets, 6♂♂, 18.IX.1995, leg. GOATER, in coll. ZMUC and there is also a small number of records from the Greek area of the Rhodopes Mountains. A visit to the original site east of Paril village during August 2013 by myself in the company of RYRHOLM,

HONEY, GIUSTI, KARSHOLT and ZLATKOV found that the actual type locality of *alibotuschella* is now covered by woodland, but several adjacent areas still consisted of steeply-sloping karst habitat and here the moth was abundant. It is probably overlooked at several inaccessible places in the mountains of southern Bulgaria, but populations will almost certainly be extremely localised.

The larval foodplant is unknown, but there seems to be a possible association with *Thymus*.

Genera *Pempeliella* CARADJA, 1916 and *Delplanqueia* LERAUT, 2001

LERAUT (2001) raised the taxon *inscriptella* DUPONCHEL, 1836 to full species status and placed it, together with *dilutella* ([DENIS & SCHIFFERMÜLLER],1775), in a new genus *Delplanqueia* (at the same time, electing a neotype for *dilutella*). Other taxa placed by LERAUT in *Delplanqueia* are *cortella* CONSTANT, 1884 and *nobilella* RAGONOT, 1887. The taxa *ornatella* [DENIS & SCHIFFERMÜLLER], 1775, *ardosiella* RAGONOT, 1887 and *sororiella* ZELLER, 1839, were specifically retained within genus *Pempeliella* CARADJA, 1916. Interestingly, careful, line by line comparison of LERAUT's descriptions of the two genera (in French) reveal that the only "formal" differences between the two are in the gnathos, which is "upright straight-tipped" in *Pempeliella* and "formed of two thick short arms directed straight upright" in *Delplanqueia*. There is an evident potential for further research in this particular taxonomic area of the Phycitinae; further comments are made under some of the individual species headings below.

***Delplanqueia dilutella* ([DENIS & SCHIFFERMÜLLER], 1775) and *Delplanqueia inscriptella* (DUPONCHEL, 1836)**

The separation of these two taxa as full species has been questioned, at least informally, by some researchers. LERAUT (2014) indicates, via the medium of distribution maps, that the taxon *dilutella* occurs throughout Western and Eastern Europe, north into Fenno-Scandia, but is absent from the British Isles. In contrast, the map for the taxon *inscriptella* indicates a presence throughout Western Europe, including the south and west of the British Isles, extending east to include Italy but absent from Austria, Germany and all points east, including Bulgaria. This is simply not the case. AGASSIZ (2015) has shown that both taxa are present in the British Isles, with *dilutella* apparently confined to the far west and *inscriptella* more or less everywhere. This latter author also presents additional information on how the two taxa may be separated, but notes that this is often problematic. Almost all of the material examined from Bulgaria is in poor condition, having been salvaged from the bottoms of light traps, bulk-stored and then eventually transported to me for examination. Without exception, therefore, initial diagnoses of samples in the present study have been based on characters of the genitalia. In the male, the feature selected has been the size and shape of the single cornutus which is, essentially, long and thin in *inscriptella* and short and fat in *dilutella* (Plate 13). On this basis, the most frequently encountered taxon within Bulgaria is, without question, *inscriptella*. A small number of examples conforming to *dilutella* are occasionally encountered, but contrary to the situation in the British Isles, referred to above, both taxa may be present at the same site. More confusingly, however, is the regular appearance in Bulgarian light traps of intermediate examples, in which the cornutus cannot be, with particular confidence, allocated to either taxon. This may suggest that rather than there being two fully separated species there may be just one – in an active state of evolutionary divergence. The situation is compounded somewhat by the realisation that whilst the majority of males can be reliably allocated to the *inscriptella* taxon, the bulk of female examples appear to be referable to *dilutella*. This is not necessarily unexpected if there is a single species that is actively evolving.

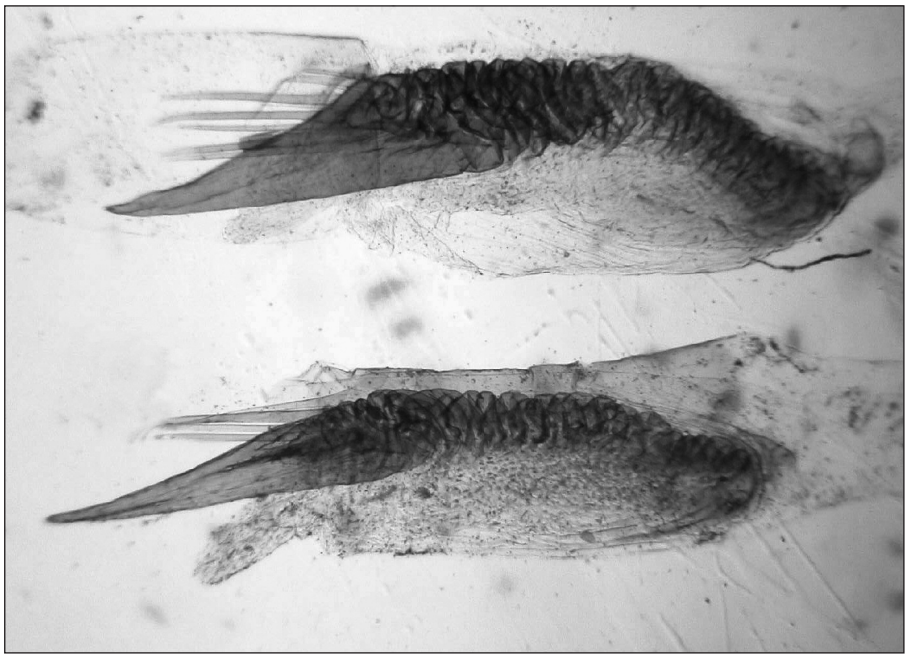


Plate 13: Cornutus of *Delplanqueia* species: Top picture: *dilutella* D. & S.; bottom picture *inscriptella* DUPONCHEL.

In an attempt to clarify the issue, during 2016 I began a program of routinely everting the vesica of the aedeagus in male examples. This has revealed a small, but apparently consistent difference between typical examples of the two taxa (Fig. 9). When fully everted, the vesica adopts a position that forms a significant angle to the aedeagus; within the inner curve of this angle a small but distinct, triangular-shaped diverticulum is apparent in *inscriptella* (Fig. 9a). In "good" examples of *dilutella*, in which the shape of the cornutus leaves no room for confusion, this diverticulum is quite absent (Fig. 9b). Examples with an intermediate-shaped cornutus always possess the diverticulum, although not always so strongly developed as in typical *inscriptella* examples. It is important to note that the vesica must be *fully* everted to observe the difference. Simply tugging the cornutus with forceps achieves partial eversion only and the result is a lore or less linear arrangement of aedeagus and vesica. It must be noted that whilst I have dissected a large number of *inscriptella* specimens, the number of *dilutella* available has been very small, so that in terms of pure statistical accuracy the findings are perhaps not significant. It is for others, better versed in the principles of evolutionary biology, to decide if there is one species that is actively evolving, or two species with one or both possessing an intermediate form. For the present work, I consider it a wise approach to separate records into three groups – *dilutella*, *inscriptella* and intermediates so that when the clouds of confusion are eventually blown away future researchers will be left with a dataset that has at least the minimum of necessary detail for interpretation.

5690 ***Delplanqueia dilutella*** **([DENIS & SCHIFFERMÜLLER], 1775) sensu stricto**

13 records: 2010 – 2014

Valid reports of this taxon are very few; they are listed here in chronological sequence: Kavarna, 1♂, 15.VIII.2009. leg. PLANT; Sugarevo, 885 m., 1♀, 17.VI.2010, leg. ZLATKOV & SIVILOV; Balchik area, 6♂2♀, 12.IX.2010, leg. BESHKOV & ZLATKOV; Pobeda near Zvanarka, 1♂, 10.VI.2011, leg. BESHKOV; Brestovitsa, 3♂, 18.VII.2011, leg. ZLATKOV; Durankulak,

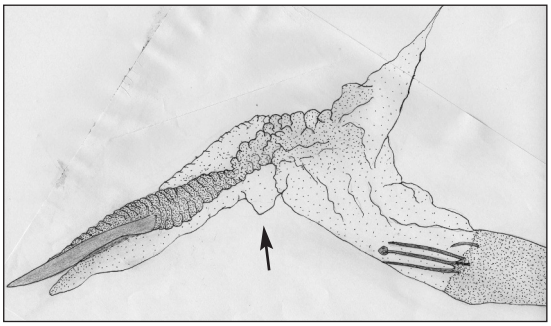


Fig 9a: *Delplanqueia inscriptella* DUPONCHEL, 1836
Slavyanka, 7.VI.2014, leg. S. BESHKOV.

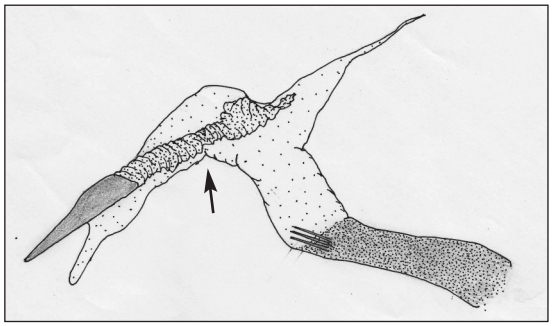


Fig 9b: *Delplanqueia dilutella* ([D. & S.],1775)
Kozhuh, 13.V.2006.leg. B. ZLATKOV.

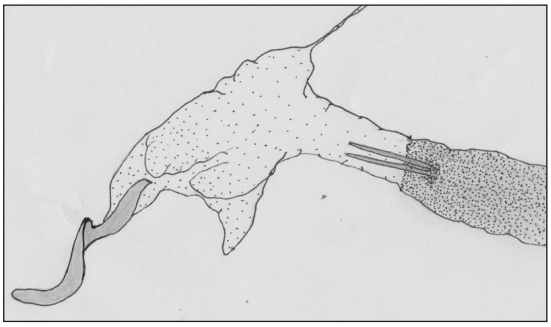


Fig 9c: *Pempeliella ornatella* [D.& S.], 1775
Yagodina, nr. Golyamo Belyovo,
3.VII.2015, leg. C. W. PLANT

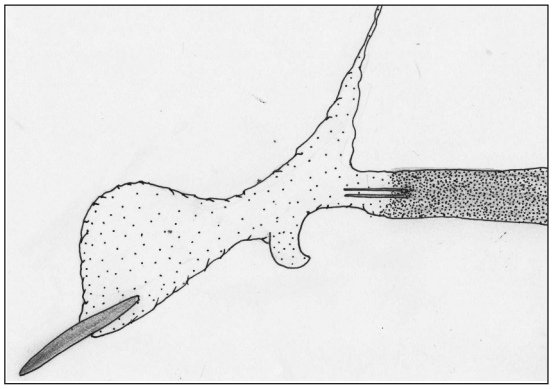


Fig 9d: *Pempeliella sororiella* ZELLER, 1839
Kresna, 13.VI.2014, leg. S. BESHKOV.

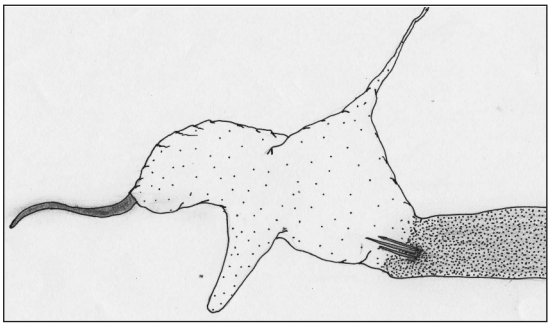


Fig 9e: *Pempeliella bulgarica* SLAMKA & PLANT, 2016 Polska
Skakavitsa (Zemen Mountains), 7.VII.2012, leg. S. BESHKOV.

Fig. 9: Everted vesica of male genitalia of *Pempeliella* and *Delplanqueia* species from Bulgaria.

1♂, 17.VIII.2011, leg. PLANT; Dobrudzha Kraishte, 1♂ 25.VIII.2011, leg. BESHKOV; Polska Skakavitsa, 2♂♂ 2♀♀ 7.VII.2012, leg. BESHKOV; Malko Tarnovo, Strandzha Mountains, 1♂ 31.VII.2012, leg. BESHKOV; Kozhuh, 4♂♂ 5.V.2014, (also 10♂♂ *D. inscriptella* in same sample), leg. BESHKOV; Slavyanka, 1♂ 7.VI.2014, (also 8♂ *D. inscriptella* in same sample), leg. BESHKOV; Sharalia, Pirin Mountains, 1♂ 8.VI.2014, leg. BESHKOV. The absence of records prior to 2009 is entirely artificial; these merely pre-date knowledge of the genital differences referred to above and are represented by badly damaged material that was not retained.

…. ***Delplanqueia inscriptella* (DUPONCHEL, 1836)**

64 records: 1923 – 2015

This is the dominant taxon in Bulgaria, numerically at least, but examination of the distribution map suggests that it occupies the same range, if not the same sites, as *dilutella* (D.& S.) The records are too many to list here, but all are identified within the database for future reference. Affected habitats range from the coastal landslips and cliff ledges at Balchik and coastal cliff top grassland at Kavarna to the scrub-invaded, calcareous grassland above Stara Kresna Station at altitudes from more or less sea level on the coast to 1560 m. in the Slavyanka Mountains.

…. ***Delplanqueia dilutella / inscriptella***

Some older material was not available for critical examination. For example, REBEL (1903) reported an undated specimen from "Bulgaria" collected by Dr WOCKES and another specimen from Sofia, collected by JOAKIMOW, the latter almost certainly collected in the 1890s. In addition, I am aware of Nessebar, June (SOFFNER, 1967); Zemen Gorge, Konyavo (now Konyavska) Mountain, 23.V.1981 (GANEV, 1984); Belasitsa, 19.V.1982 (GANEV, 1984); Kresna, 14.X.1980 (GANEV, 1984); Kozhuh, 13.VIII.1982 (GANEV, 1984); Tarnovo, 1♂, 8.VIII.1928, leg. TULESHKOV; Tarnovo, 1♀, 11.VIII.1928, leg. TULESHKOV; Kresna, 1♂, 2.VI.1930, leg. TULESHKOV; Belasitsa, 19.V.1982; and Kaliakra, 21.VIII. 2011, leg. JUHÁSZ ISTVÁN, det. & in coll. SZABÓKY. Other material has been seen by me, but I was not aware, at the time of examination, of the important features. Some of this material remains available and may be subjected to critical re-examination in due course, but a large amount has been lost as it was deliberately discarded. All are defined within the database, but for the present report are best expressed in the distribution map.

Adults of the aggregate are on the wing more or less continuously from the start of May (3rd) to late October (22nd) but there are significantly greater numbers in August, whilst the number of records (as opposed to the number of specimens caught), appears to show multiple peaks, in standard week numbers 20 (14.V – 20.V), week 29 (16.VII to 22.VII), weeks 32 to 34 (6 .VIII to 26.VIII) and week 37 (10.IX to 16.IX).

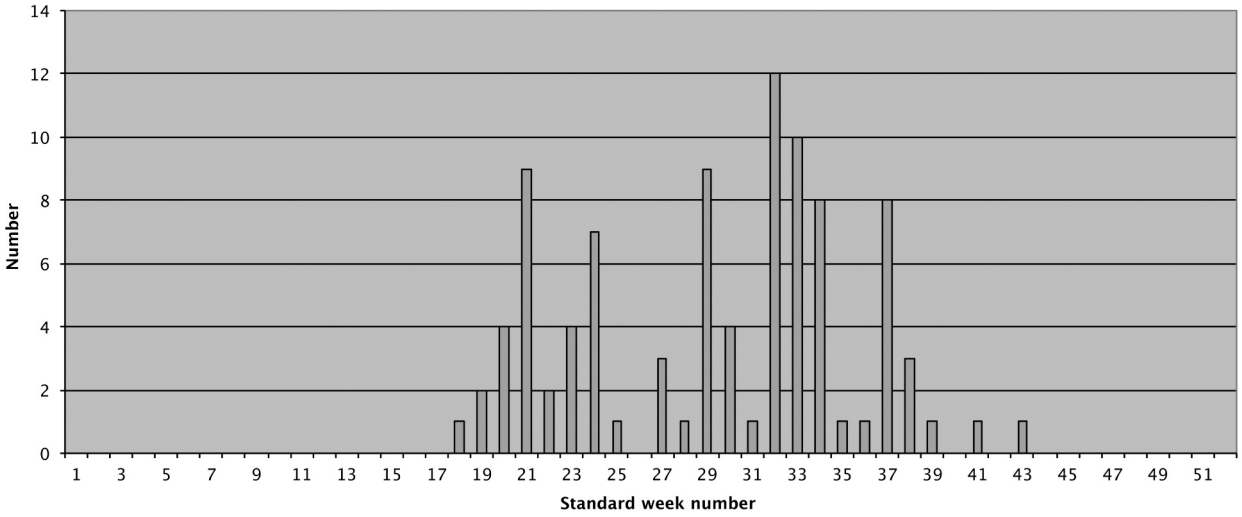
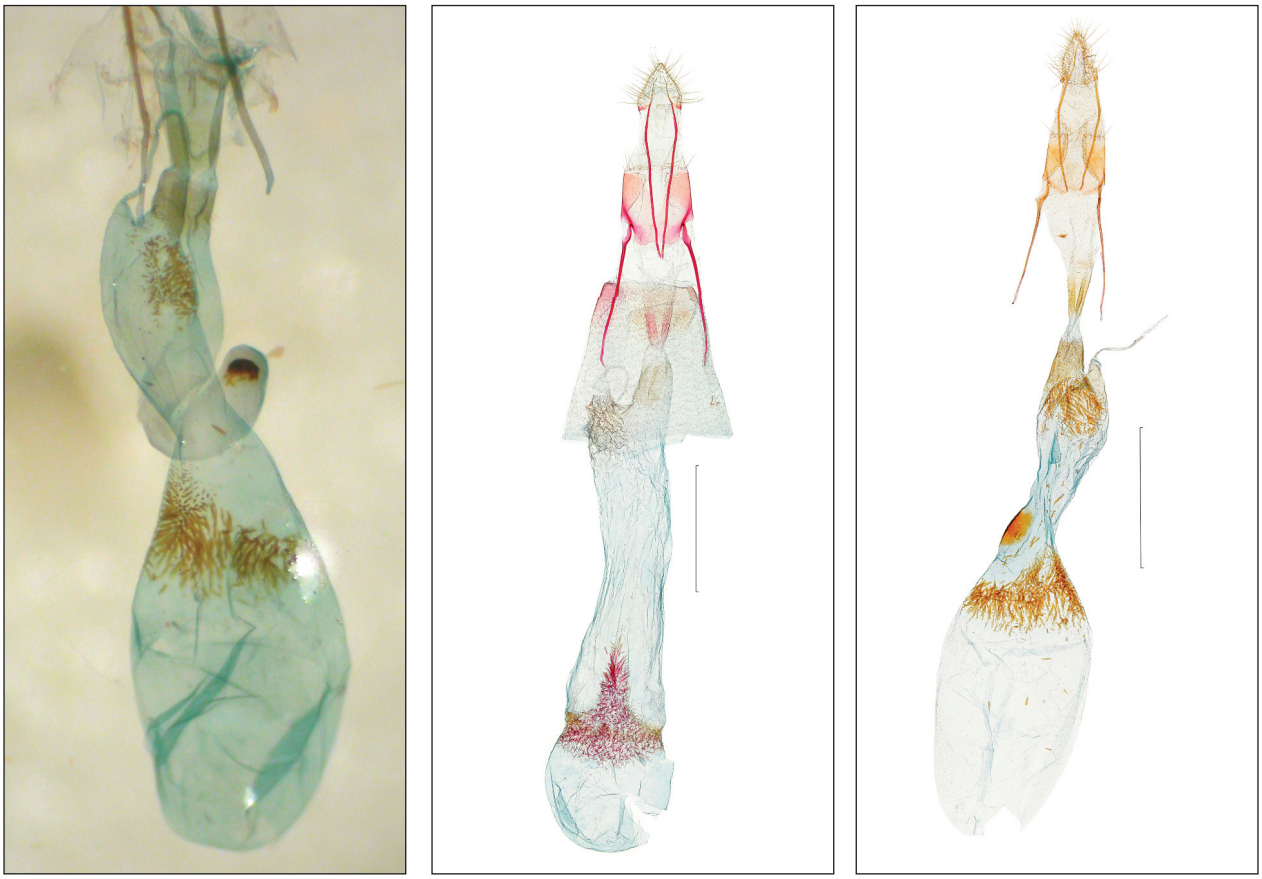


Fig. 10: Flight period by standard week number (horizontal axis) of *Delplanqueia dilutella*/*inscriptella* species in Bulgaria.

5686 ***Pempeliella ornatella* ([DENIS & SCHIFFERMÜLLER], 1775)**

48 records; 1863 – 2015

The earliest available Bulgarian reports of this species are from Varna and Sliven (LEDERER, 1863), but a look at the distribution map shows that with two exceptions, from the Eastern Rhodopes and Strandzha Mountains, these are the only reports from the east of the country and it has not been seen in that region since. It is a widespread species in the south-west, affecting all of the mountain ranges there, and extends north via the Ossogovo and Vitosha Mountains to the Iskar



Pempeliella ornatella [D. & S.], 1775 Yagodina, near Golyamo Belyovo village, 3.VII.2015, leg. C. W. PLANT

Pempeliella sororiella ZELLER, 1839. Baden, Austria, 1917, in coll. NHMW (genitalia slide GP793FS courtesy of FRANTISEK SLAMKA

Pempeliella bulgarica SLAMKA & PLANT, 2016. Paratype female Haskovo, Bulgaria, 17.VII. 20015. leg. C. W. PLANT

Fig. 11: Female genitalia of *Pempeliella* species from Bulgaria.

Gorge at Lakatnik. It is usually abundant in these places with adults on the wing from June to August, with a definite peak in numbers during July. REBEL (1903) records it up to 1300 m. in the Rila Mountains, and TULESHKOV & SLIVOV (1975) reported it as "common on scrubby and grassy slopes up to 1800 m." in the Rhodopes. It was recorded at 1900 m. at Orelyak in the Pirin Mountains in August 2010 (leg. BESHKOV) and this appears to be the highest altitude on record for the country. However, whilst higher ground seems to be favoured, I have recorded it at Kresna, at approximately 480 m., on multiple occasions and so it does not seem to restricted to higher altitudes; it is likely to be foodplant availability that restricts the spread of the moth to areas of natural and semi-natural vegetation – which happen to coincide, in the main, with the more mountainous areas. Its apparent absence from the east and north of the country is something of a mystery, although this too may relate to foodplant availability.

Larvae have not been found in Bulgaria, but throughout its European range they are known to feed from a silk web, spun near the roots of *Thymus* species.

5687 *Pempeliella bulgarica* SLAMKA & PLANT, 2016

8 records: 2009 – 2015

A moth collected at Gotse Delchev, Blagoevgrad region, 1♂, 9.VII.2009, leg. BESHKOV appeared at first glance to resemble *Pempeliella ardosiella* (RAGONOT, 1887). This would have been a surprising species for the Balkans since it is only known in Europe from France and Iberia, extending southwards into North Africa. Four years later, OLE KARSHOLT caught another male at Trigrad, on 3.VIII.2013. It is recognised, principally, from the large distorted cornutus in the aedeagus of the male moth, but the shape of this was not quite right. Meanwhile, the same taxon was discovered by SLAMKA during his research of museum material for the next volume in his series of books on European Pyraloidea; concern started to be raised that it might be a new species; a female was needed. In 2015 I was finally able to make specific searches for this "new" species. I visited Trigrad on 12.VII.2015 with ZLATKOV and BESHKOV, putting my lights exactly where the other example had been

found by KARSHOLT, but none were attracted and it was generally felt that we might be two or three weeks too early. However, a few days later small numbers were found further east in the Rhodopes Mountains at Belopolyane, 270m, 15.VII.2015, at Meden Buk, 140m, 16.VII.2015, at Mezek, 450m, 17.VII.2015 and further north near Sliven, hills above town to the north, 500m, 1♂, 19.VII.2015 – all leg. PLANT & ZLATKOV. These samples included females and confirmed that the taxon was indeed an undescribed species (*vide* SLAMKA & PLANT, 2016). Subsequently, further examples have been found in the damaged material collected from the bottom of light traps run at Polska Skakavitsa in the Zemen Mountains, 1♂ 7.VII.2012, leg. BESHKOV and near Odrintsi village in the Rhodopes, 1♀ 16.VIII.2014, leg. BESHKOV. Collectively, these suggest an adult flight period from early July (7th) to mid August (16th); more records are required to define this more accurately.

5691 ***Pempeliella sororiella* ZELLER, 1839**
= *marilella* GUENÉE, 1845
= *jucundella* MANN, 1864
= *satureiella* MILLIÈRE, 1873
= *sororculella* RAGONOT, 1887
= *albicostella* AMSEL, 1958

12 records; [1984] – 2015

The synonymy of this species was discussed by SLAMKA & PLANT (2016). There is a Bulgarian specimen labelled as belonging to this species in the Rome Museum (ZILLI, pers. comm.), probably collected by GANEV. Separation from *Pempeliella bulgarica* SLAMKA & PLANT requires examination of the genitalia and I have not yet been able to examine this specimen nor to extract data from the label, but if correctly named it represents the earliest known report of the species for Bulgaria. The remaining records, all gen. det. PLANT, are as follows: Gotse Delchev, Blagoevgrad region, 1♂, 6.VI.2004, leg. ZLATKOV; Kozhuh, 2♂♂, 11.V.2010, leg. PLANT; Ilindentsi, Blagoevgrad, 200 m., 1♂, 23.V.2010, leg. O. Karsholt, in coll. ZMUC; Egrek, Eastern Rhodopes Mountains, 1♂, 13.VIII.2011, leg. BESHKOV; Polska Skakavitsa, Zemen Mountains, 1♂ 7.VII.2010, leg. BESHKOV; near Paril village, Slavyanka Mountains, 1♀, 18.VI.2013, leg. BESHKOV; Dishlik dere, Eastern Rhodopes Mountains, 2♂, 2.V.2014, leg. BESHKOV; Kozhuh, 1♂ 9.V.2014 and 1♂ 19.V.2014; Kresna area, 1♂ 13.VI.2014, leg. BESHKOV and Sliven, hills above town to the north, 500m, 1♂, 19.VII.2015,leg. PLANT & ZLATKOV. The apparent numerical scarcity of this moth is surprising, but perhaps genuine, though it will no doubt be found in several other localities.

The distribution covers the entire south of the European Continent from Spain, through France, Italy and most of the former Yugoslav Republic to Greece and Turkey, along the entire of the Mediterranean and Adriatic seaboards. In this region, the larvae have been recorded as feeding on *Thymus*, *Origanum*, *Lavendula* and *Satureia*.

5700 ***Catastia marginea* ([DENIS & SCHIFFERMÜLLER], 1775)**
= *Catastia acraspedella* STAUDINGER, 1879 syn. nov.

14 records: 1863 – 2013

Apart from examples referrable to STAUDINGER's *acraspedella*, discussed below, all of the Bulgarian material that I have been able to examine is referable to the nomino-typical subspecies *marginea*, in which the cilia along the termen of the forewing are black, as indeed it is said to be the case elsewhere in the Balkans as well as in Austria, Hungary and Slovakia (LERAUT, 2014). The subspecies *auriciliella* HÜBNER, 1813, in which the forewing cilia are yellow, as in the hind wing, allegedly occurs further west and north in Europe, with the distribution map in LERAUT (2014) indicating the Alps, a small area in the Pyrenees and throughout Norway, Sweden and Finland. The earliest records of the species for Bulgaria are from Rila by HABERHAUER and Sliven by LEDERER, both given in REBEL (1903). It seems to be a species of reasonably high mountains. Records that include a note of altitude are: Pirin, 1000 m. on 14.VII.1911 and 2700 m. on 12.VII.1915, leg. BURESCH, in coll. NMNHS; Rila and Pirin Mountains, between 1450 and 2000 m. (DRENOWSKI, 1925); Slavyanka Mountain at 1560 m., 1♂2♀♀ 18.VI.2013, leg. BESHKOV and Tiha Rila, 2000 m., 2♂♂1♀, 1.VIII.2013, leg. GASHTAROV, in coll. PLANT. Altitude is perhaps the reason why the species is apparently restricted to the south-west of Bulgaria. In this context the report from Sliven, by deduction referring to the year 1863, is somewhat anomalous as indeed is the report from "Viden", 23.VI.1982 (GANEV, 1984). I am not able to locate a place called Viden and it is assumed that "Vidin" was intended; it is in any case an anglicisation of a word originally presented in Cyrillic script. Neither locality has produced this very distinctive moth in recent years.

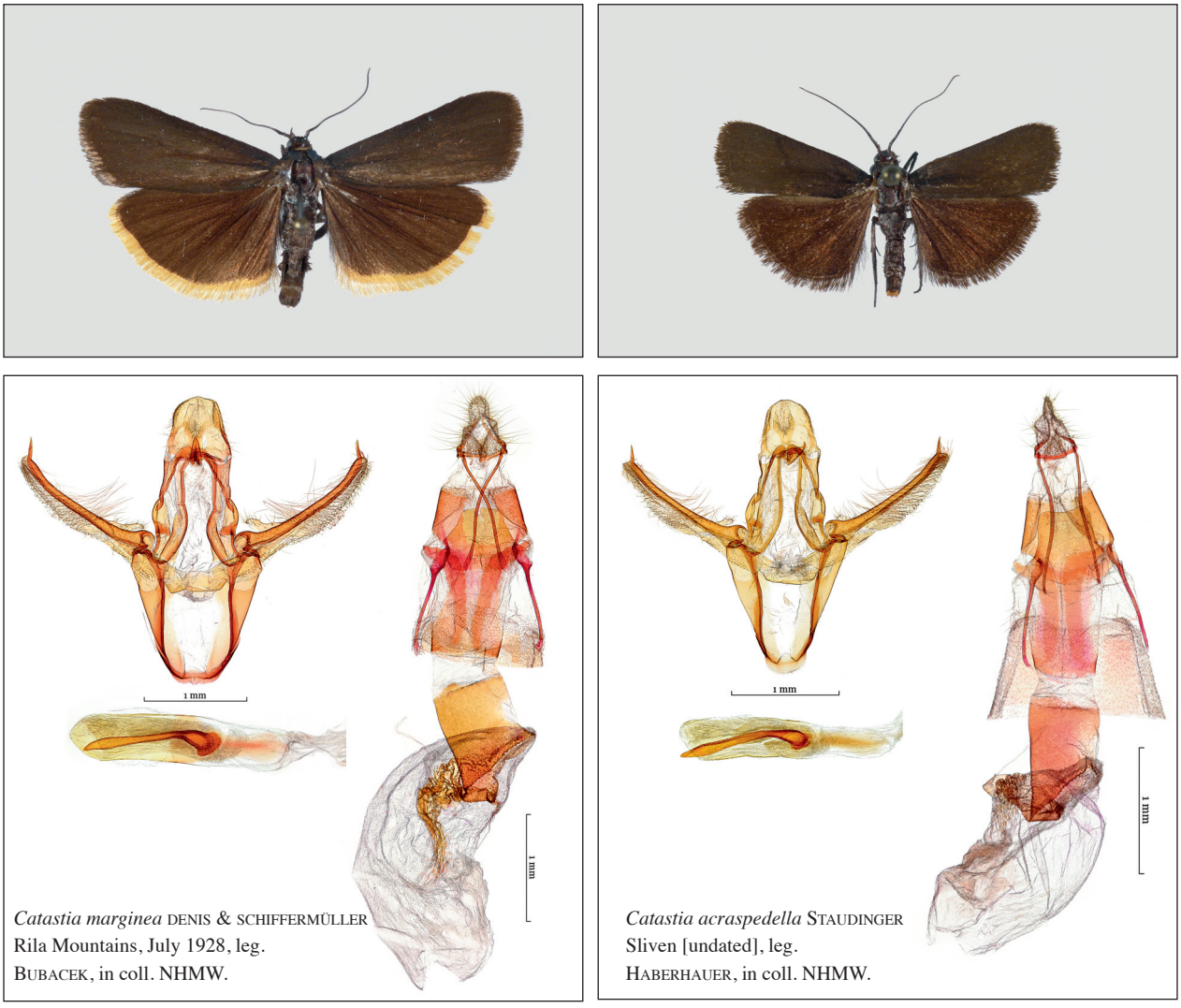
As for almost all members of the family, we do not have any data on the larvae in Bulgaria; elsewhere in Europe recorded foodplants are *Alchemilla vulgaris* and *Potentilla*.

[5701 ***Catastia acraspedella* STAUDINGER, 1879**

According to REBEL (1903), HABERHAUER collected several examples of this taxon from the Sliven Mountains at Chatalka and noted that these agreed fully with both RAGONOT's text and his illustrations. He went on to mention that a report of

acraspedella from Armenia was incorrect and that this taxon was, therefore, probably endemic to the Balkans. However, there remains doubt over this – if only because REBEL clearly felt the need to mention it. According to SERGEY SINEV (personal communication via F. SLAMKA), both *Catastia marginea* and *C. acraspedella* are indeed known from the Caucasus. HABERHAUER resided at Sliven, but also collected Lepidoptera in Armenia and is possible that labels of his specimens were misapplied. Investigation during January 2016 by FRANTISEK SLAMKA has revealed the presence of seven males labelled "*Haberhauer, Slivno, Bulgarien*" in NHMW. SLAMKA notes (pers. comm.) that these specimens show little difference from *C. marginea* (D.& S.) and so may be just a form of that species (Plate 14). The original description by STAUDINGER (1879) includes the following text "*..* einer *Catastia* mit grünlich schwarzen Vorderflügeln und ganz schwartzen Hinterflügeln, die der *Chalybella* sehr ähnlich sehn. Der plumpere Leib, beim ♀ auch mit einer gelben Spitze, so wie die tiefer schwarzen Hinterflügel etc. lassen diese jedoch al seine sichere *Catastia* erkennen, die vielleicht sogar nur ein Lokalform der bekannten Art ist, aber sichen einen eigenen Namen verdient, und nenne ich sie *Acraspedella*" [*.. a Catastia* with greenish-black front wings and very blackened rear wings, which looks very similar to *chalybella*. The abdomen of the ♀ also has a yellow tip, and with the deeper black hindwings etc. this suggests that this is certainly a *Catastia,* but maybe only a local form of the known species, though in my opinion it deserves its own name and so I call it Acraspedella. REBEL (1903) specifically stated that he did not regard it as a form of *C. marginea* because of its slender form. Interestingly, LERAUT (2014) discusses it under the heading of *Lymphaea chalybella* (p. 322) and states that it is probably that species. Certainly, I concur with LERAUT that the moth represented in the colour illustration by RAGONOT could easily be *Lymphaea chalybella*; if his illustration depicts one of these seven specimens (and I believe that it does), it provides a salutary lesson concerning the reliability of third party artistic interpretation!

The result of all of this is continuing confusion. I am unable to observe any differences between the gross morphological appearance of the details of the genitalia of either sex between *marginea* and *acraspedella* and am inclined to the opinion that they are synonymous. This matters not for the present exercise, however, since there is significant doubt over the provenance of the Bulgarian records in any case. Consequently, *C. acraspedella* is deleted from the Bulgarian fauna.**]**



Catastia marginea DENIS & SCHIFFERMÜLLER
Rila Mountains, July 1928, leg.
BUBACEK, in coll. NHMW.

Catastia acraspedella STAUDINGER
Sliven [undated], leg.
HABERHAUER, in coll. NHMW.

Plate 14: Comparison of the taxa *marginea* DENIS & SCHIFFERMÜLLER and *acraspedella* STAUDINGER. Photography by F. SLAMKA.

5706 ***Khorassania compositella*** **(Treitschke, 1835)**

10 records: 2010 – 2015

According to the *Fauna Europaea* web site, accessed in September 2015, this species is widespread across most of Europe and it was a surprise to discover, therefore, that there were no examples in the NMNHS and no Bulgarian reports prior to the start of this current project. It seems inconceivable that the species was absent before the first record in 2010 and it must surely have been overlooked. This is less surprising than it would be in a country in Western Europe, since in Bulgaria Lepidopterists are significantly rarer than their quarry and have evolved extreme specialisation! There are no native Bulgarians collecting or studying the Pyraloidea. The spread of known records extends from the Black Sea coast at the mouth of the Kamchia River, 23.VIII.2010, leg. Zlatkov & Sivilov, via the Stara Planina at Dolni Varpishta, 1♂ on 14.VIII.2012, leg. Beshkov to the west at Polska Skakavitsa, Zemen Mountain, ♀♀ 7.VII.2012, leg. Beshkov and the Chepan Hills, 1♂, 12.VI.2014, leg. Beshkov as well as in the southern uplands in the Eastern Rhodopes, between Zvanarka & Pobeda, 10.VI.2011, leg. Beshkov, and the south-west part at Gradeshka Banya, near Kresna, 16.VI.2013, leg. Beshkov, the Slavyanka Mountains, near Paril, 7.VIII.2013, leg. Plant, the Pirin Mountains below the radio mast at Orelyak, 8.VIII.2013, leg. Plant, and the Ossogovo Mountains at Smolichano, 1♂ 11.VIII.2014, leg. Beshkov. It is also noted in the hills above Sliven town, 500 m., 1♂ 19.VII.2015, leg. Plant. From these data may be deduced that fact that the moth is probably bivoltine, flying in June and August.

It is likely that *K. compositella* may prove to be relatively widespread wherever the larval foodplant, *Artemisia campestris*, is available.

5709 ***Insalebria serraticornella*** **(Zeller, 1839)**
= *Serrulacera serraticornella* (Zeller, 1839)
= *Nephopteryx serraticornella* (Zeller, 1839)
= *Phycis gregella* Eversmann, 1844
= *Insalebria gregella* sensu Slamka, 1997
= *Selagia zernyi* Toll, 1942

9 records: [1903] – 1936

The synonymy of this taxon is summarised by Leraut (2003a). *Insalebria serraticornella* reaches the western edge of its distributional range in the Balkans, extending from Bulgaria eastwards through southern Russia. Nevertheless, it was a surprise to discover that there are no Bulgarian reports of this species since 1936. The first record was that made by Haberhauer at Sliven and given in Rebel (1903). From the Black Sea coastal zone there are reports from Balchik, ♂♂ 6.VII.1929 & 8.VII.1929, ♀♀ 5.VII.1929 & 30.VI.1930 (Popescu-Gorj, 1964). Examination of the collections at NMNHS during 2014 revealed material from Varna, 1♂, 19.IX.1936 and 1♀ 25.?.1935 [label illegible], both leg. Karnozitzki and from the Slavyanka Mountain in the south-west, 1♀, 16.VI.1929, leg. K. Tuleshkov. There is another Bulgarian specimen under the label *gregella* Eversmann in the Rome Museum (Zilli, pers. comm.) I have not yet examined this. The records suggest two flight periods, from mid-June to early July then again in mid-September, although the number in the sample is small.

Evidence suggests that the species affects xerothermic grassland habitats (Slamka, 2010), but the larva and its pabulum are evidently unknown.

5718 ***Sciota fumella*** **(Eversmann, 1844)**
= *Clasperopsis fumella* (Eversmann, 1844)

1 record: 2010 – 2010

The single report of *Sciota fumella* for Bulgaria is from the Belasitsa Mountain, above Petrich by the Luda Mara River, 1♂ at light, 9.VII.2010, leg. Beshkov, gen. det. Plant. This is especially interesting since this may represent the most southerly station for this moth in Europe. Belasitsa is an unusual place since there are other "northern" species there such as *Anarta cordigera* (Thunberg, 1788) and *Noctua janthe* (Borkhausen, 1792) (Beshkov, pers. comm.) and *Dichrorampha obscuratana* (Wolff, 1955) (Zlatkov, pers. comm.)

The larval foodplant appears to be unknown.

5722 ***Sciota insignella*** **(Mann, 1862)**
= *Nephopterix insignella* Mann, 1862

1 record: [1903] – [1903]

Rebel (1903) notes that "according to Dr. Wockes, a specimen has been found in Bulgaria". He added that this was probably recorded at Sliven, but he might possibly have had doubts over the validity of the record, since he also commented that "proof

of this occurrence would be highly desirable". This may or may not be the Bulgarian specimen that is present in the Rome Museum (Zilli, pers. comm.) and which I have not yet been able to examine; insufficient data are available to allow this record to be shown in a distribution map. The species is listed on the Fauna Europaea web site, at January 2016, as occurring in Croatia, Romania, Bulgaria and European Turkey, but there do not appear to be any Bulgarian data other than that listed above.

5724 ***Sciota rhenella*** **(Zincken, 1818)**
= *Nephopteryx rhenella* sensu Reisser & Züllich, 1934

5 records: 1964 – 2010

The five Bulgarian records are, chronologically, from above Lilyanovo, Pirin Mountains at 900 m., 22-27.VII.1933, leg. Reisser (Reisser & Züllich, 1934), the Iskar Gorge at Mezdra, 1♀ on 15.VII.1964 & 1♂ at light on 24.VIII.1965 and at Cherepish, 20.VI.1966, 1♂ from young *Populus* plantation alongside the river (Slivov, 1970) and from the Struma Valley at Novo Hodzhovo Marsh, 115 m., 1♂ on 14.VI.2010, leg. Zlatkov & Sivilov. Only the last has been critically checked by myself, but there is no reason to doubt the other reports.

Elsewhere in Europe, the larvae feed on *Populus* and it is highly likely that this moth will be present throughout Bulgaria in river valleys with this tree.

5727 ***Sciota adelphella*** **(Fischer von Röslerstamm, 1836)**

1 record: 2002 – 2002

The only recent Bulgarian record of *Sciota adelphella* is of 1♂ at the Kresna Gorge, 230 m., 25.V.2002, collected by myself (vide Plant et al., 2003). A single historical record is provided by a female example collected in the Belasitsa Mountains, 6.VI.1929, leg. Tuleshkov and preserved in NMNHS.

According to Leraut (2014), the larvae feed on *Salix* and perhaps *Populus* and frequent riverside *Salix* carr and similar habitats. As is the case with *S. rhenella*, this species may have a significantly wider distribution within Bulgaria.

5730 ***Denticera divisella*** **(Duponchel, 1842)**
= *Nephopteryx divisella* sensu Reisser & Züllich, 1934

16 records: 1932 – 2014

The earliest records are from the Kresna Gorge, where it was collected on 18.VI.1932 and 7.VII.1932 by K. Tuleshkov (specimens in NMNHS). A year later examples were caught above Lilyanovo, in the Pirin Mountains at 900 m., 22-27.VII.1033, leg. Reisser (Reisser & Züllich, 1934). It was also collected again in the Kresna area, near the railway station, on 22. x.1981 (leg. & coll. Szabóky), on 20.IX.2010, 1♂, leg. Plant & Pickles, in coll. Plant and again by myself on 31.VII.2013. Elsewhere in the south-west it is reported from Melnik-Rozen, 23.X.1981, leg. & coll. Szabóky. Further east, it is known from the area of the Zlatnata Yama Cave, near Kremen village, 280 m., 22.X.2003, 1♀, leg. Beshkov, Beron & Petrov and further east still it is found on the Black Sea coastal area on coastal cliff top grassland at Kavarna, 15.VIII.2009, leg., Plant, Beshkov & Zlatkov and at Shablenska Tuzla Lake, near Shabla, 8.X.2009, leg. & in coll. Zlatkov. More recent reports are from Vlahi village, 2♀, 5.XI.2014, leg. Beshkov and from Melo village, 1♂ 6.XI.2014, leg. Beshkov. Elsewhere, it is distributed across much of the far south of Europe from Gibraltar to Turkey and it is likely to be a fairly widespread species in all suitable areas of Bulgaria.

The larvae are associated with spurges of the genus *Euphorbia* and feed gregariously from an untidy, open silk web. The flight-time dates for Bulgaria are for 16 June, 7 July, 31 July and 15 August then 20 September to 23 October, the second date band incorporating the majority of records. A single later record is listed above from Melo village on 6th November.

5732 ***Selagia argyrella*** **([Denis & Schiffermüller], 1775)**

This species is represented in Europe by two subspecies – the nominotypical ssp. *argyrella* ([Denis & Schiffermüller], 1775) and ssp. *subochrella* (Herrich-Schäffer, 1849), the latter having been relegated to sub-species status by Leraut (1993). Many authors have treated the two taxa as full species, but the small differences in male genital structure appear to be inconsistent and may be induced by varying the pressure on the glass cover slip of the microscope slide. Leraut (2014) suggests that the two are parapatric (their ranges do not significantly overlap, but are immediately adjacent to each other and they occur together only in a narrow contact zone). In order to facilitate future understanding I treat the two subspecies separately here.

The larva of subspecies *argyrella* is said to feed on *Calluna vulgaris*, *Helianthemum* and *Potentilla*, feeding between spun leaves of the host plant and overwintering in a cocoon on the plant. I have no larval foodplant data for ssp. *subochrella*.

5732 ***Selagia argyrella argyrella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

13 records: 1903 – 2013

First noted for Bulgaria from Sofia "in Steppe habitats during July" (REBEL, 1903), this subspecies is recorded widely in the west and south-west of the country, from the western end of the Stara Planina down to near the Greek border at Kalimantsi and eastwards to the Western Rhodopes at Peshtera, 26.VIII.1963 and Trigrad, 2♂♂, 1♀, 25.VIII.1968 (TULESHKOV & SLIVOV, 1975). Away from here there is a single old record from Sliven, 14.VII.1913, collector unknown (in coll. NMNHS) and one modern report from the Silistra region at Chukovets, 2♂ 23.VIII.2012, leg. BESHKOV. The adults are recorded from June to September, though not continuously, with recorded dates of 15 June (1), 5 July (1), 22 July (1), 8 August (1), 23 – 26 August (3), 13 September (1) and 18 September (1).

5734 ***Selagia argyrella subochrella*** **(HERRICH-SCHÄFFER, 1849)**

2 records: 2009 – 2010

The two records are from the Kavarna area, coastal cliff top grassland, 2♀♀, 15.VIII.2009, leg., PLANT, BESHKOV & ZLATKOV, in coll. PLANT and between Kalimantsi and Belyovo, 1♂, 22.VII.2010, leg. ZLATKOV, SIVILOV & BEKCHIEV. The latter is interesting as it coincides with the presence of ssp. *argyrella*. There is a Bulgarian specimen under the label "*argyrella*" in the Rome Museum (ZILLI, pers. comm.) which I have not yet been able to examine.

5735 ***Selagia spadicella*** **(HÜBNER, 1796)**

44 records: [1903] – 2014

Selagia spadicella was recorded "individually" in Sliven, by both HABERHAUER and REBEL (REBEL, 1903) and there is a specimen from the same locality, 11.VII.1911, leg. TSCHORBADJIEV, in coll. NMNHS. Other historical records are from Balchik, ♀♀ 20.VII.1928 & 23.VII.1928 (POPESCU-GORJ, 1964), Lilyanovo, 22-27,VII.1933 (REISSER & ZÜLLICH, 1934), Peshtera, 26.VIII.1963, 3♀♀ (TULESHKOV & SLIVOV, 1975), Lakatnik, 1♂ found dead in electric lamp in ix.1964 (SLIVOV, 1970), Krumovgrad, 22.VII.1968, 2♂♂ (TULESHKOV & SLIVOV, 1975; BESHKOV & LANGOUROV, 2004), Trigrad, 25.VII.1968, 1♀ (TULESHKOV & SLIVOV, 1975) and Zemen Gorge, Konyavo (now Konyavska) Mountain, 17.VIII.1979 (GANEV, 1984). In more recent years it has been collected in the Iskar Gorge at Milanovo, 2♂♂ 25.VII.2009, leg. BESHKOV, at Kamchia, 2♂♂ 7.VI.2010, leg. BESHKOV, in Dobrogea, between Voynovo and Strelkovo, 4♂♂ 24.VII.2010, leg. BESHKOV, in the West Rhodopes Mountains at Trigrad, 2♂ 31.VII.2011, leg. ZLATKOV & SIVILOV, at Kubrat, 9.VIII.2011, leg. ZLATKOV & SIVILOV and Bezhanovo, 1♂ 17.VI.2014, leg. BESHKOV. These modern specimens have all been seen by me as, indeed, have most of the older ones. An examination of the records shows adults taken on 7 June, 16 June, 18 June and then more or less continuously from 10 July to 11 September. In due course, a larger sample of adults might perhaps reveal peaks representing different generations.

Elsewhere in Europe, the larvae feed on *Calluna* and *Teucrium* species, but there are no Bulgarian larval reports.

5742 ***Etiella zinckenella*** **(TREITSCHKE, 1832)**

80 records: 1918 – 2014

This is a common and widespread species in Bulgaria and the distribution map indicates its presence in all areas examined – the gap in the north-west area reflecting the comparatively minimal recording in this area. BESHKOV (1996) regards it as an immigrant and this is certainly at least partially the case, although it is likely to also be resident along the Black Sea coast and perhaps elsewhere. The moth is recorded from sea level (e.g., Nessebar, June to August (SOFFNER, 1967) and present results) to 1400 m. (TULESHKOV & SLIVOV, 1975), the latter in the Rhodopes Mountains where the authors declared it to be common on dry grassy slopes from June to the middle of August. Adults are noted more or less continuously from 11 May to 23 September, with two earlier reports from 24 April and 1 May, both in 2012 and a single late report on 29 October, in 1995.

The larvae feed on various species of Fabaceae, which are in good supply in those parts of the coast that have not yet been destroyed in the name of tourism.

5746a ***Merulempista brucella*** **STAUDINGER, 1879**

3 records: 1929 – 2013

STAUDINGER described *Merulempista brucella* as a new species in 1879, but RAGONOT (1893) subsequently relegated it to synonymy as subspecies *harterti* of *M. cingilella* ZELLER, 1846. Here it remained, in semi-oblivion, until ASSELBERGS

(1997) reinstated it to specific rank. This move is, in my opinion, entirely correct not least because of the significant differences in the anellus of the male genital capsule and the shape of the cornuti in the aedeagus. The three *Merulempista* specimens known from Bulgaria are all preserved in NMNHS and all are referable to *brucella*: Struma Valley at Kresna, 1♂ 4.V.1929 (genitalia slide NMNHS/CWP 187), leg. TULESHKOV & 1♂ 1.VI.1929 (genitalia slide NMNHS/CWP 199), leg. TULESHKOV; East Rhodopes Mountains at Meden Buk, 1♂, 3.V.1013, leg. BESHKOV. All specimens were named from genitalia dissection performed during 2015 by myself. Elsewhere, *M. brucella* is known from Turkey and as *cingilella harterti* from Italy (ASSELBERGS, 1997), whilst examples are also known from Dalmatia and Albania (FRANTISEK SLAMKA, pers. comm., 2015). It is considered likely that dissection of museum specimens currently placed under the label of "*cingilella*" might reveal a wider distribution pattern for *M. brucella*, although no such specimens exist for Bulgaria. LERAUT (2014) lists only *M. ragonoti* ROTHSCHILD, 1913, *M. turturella* (ZELLER, 1848) and *M. jucundella* (JOANNIS, 1911) in addition to *cingilella*; the latter is presumably a typographical mistake for *M. jucundella* (CHRÉTIEN, 1911)? LERAUT regards *jucundella* as the correct name for *M. wolfschrijni* ASSELBERGS, 1997, though he fails to illustrate the genitalia so that the reader is unable to form any opinion. His *turturella* is perhaps the same taxon as *numidella* Ragonot, 1893? Further, his *M. ragonoti* cannot be that species as the type specimen in BM(NH) is quite different (MARTIN HONEY, pers. comm.). There is clearly need for a revision of this genus.

According to RAGONOT (1893), the larval foodplants of *M. cingilella* are probably *Tamarix gallica* (L.) and *Myricaria germanica* (L.). LERAUT (2014) lists them as *T. gallica*, *T. gracilis* and *Myricaria germanica*. He also lists *Tamarix africana* for *M. ragonoti*, *T. canariensis* for *M. turturella* and *Salicornia* species for *M. jucundella*. The larvae of *M. brucella* might, therefore, usefully be searched for on *Tamarix* bushes?

5751 ***Oncocera semirubella* (SCOPOLI, 1763)**

92 records: 1903 – 2014

This distinctive species is widespread and common across the country and is expected in most areas away from the agricultural flatlands, although it is more abundant in areas with a limestone geology. It is "common in clearings, meadows along rivers and crops with forage plants" (SLIVOV, 1970), in scrub and on grassy slopes TULESHKOV & SLIVOV (1975), coastal cliffs, landslips and ledges (e.g., Topola, 18.VIII.2009, leg., PLANT, BESHKOV & ZLATKOV) and coastal sand dunes and marshy woodland (at Dolni Chiflik, 16.IX.2010, leg. PLANT, PICKLES, BESHKOV & ZLATKOV). I have also found it in *Fraxinus*-dominated woodland near mouth of Kamchia River, 16.VIII.2009 and in a light trap amongst lakeside vegetation at Durankulak, near Vaklin, 17.VIII.2009. REBEL (1903) notes var. *sanguinella* HÜBNER, characterised by a whitish-yellow costal trim to the forewing, from Sofia and Rila (leg. HABERHAUER) adding that it is probably also in the Danube Plain area of Bulgaria and that both this and the nomino-typical form are widespread throughout the Balkan Peninsula. BURESCH (1908) records var. *sanguinolenta* "On the Sofia Plateau. Flies in June and July". TULESHKOV & SLIVOV (1975) state that "forma *sanguinalis* is also found but is rare". Adults of the typical form have been noted more or less continuously from 6 June to 24 September and are found from sea level in the east up to 1400 m. in the Rhodopes Mountains.

Elsewhere in Europe, the larvae are known to feed on *Lotus corniculatus*, *Trifolium repens*, *Ononis* species, *Hippocrepis comosa* and *Medicago* species.

5772 ***Oncocera amoenella* (ZELLER, 1848)**
= *Pempelia amoenella* (ZELLER, 1848)

13 records: 1925 – 2011

LERAUT, 2014 transferred this species, formerly *Pempelia amoenella*, to genus *Oncocera* STEPHENS, 1829. This attractive moth is also known from Macedonia, Croatia, Albania, Greece, Turkey and Romania, but in Bulgaria has been found at just four sites in the south. It has been reported from Kresna on numerous occasions (27.VI.1925, 16.V.1931, 28.VI.1932, 25.VI.1935, 26.VI.1935, 27.VI.1935, 28.VII.1937), all leg. TULESHKOV, in coll. NMNHS. Elsewhere it is reported in Bulgaria from Kozhuh, 1♀, 16.VI.2010, leg. ZLATKOV & SIVILOV; and in the East Rhodopes Mountains, Dolno Cherkovishte at the Iron Bridge, 19.VII.2011, leg. BESHKOV and along the Arda River between Madzharovo & Borislavtsi, 1♂, 20.VII.2011, leg. BESHKOV. It is likely that this moth will be reported from further localities in the mountainous south-west though is hard to imagine that such an attractive species has been overlooked to any significant degree.

The larval food plant appears to be unknown.

5753 ***Laodamia faecella* (ZELLER, 1839)**
= *Oncocera faecella* (ZELLER, 1839)

11 records: 1930 – 2014

In chronological order, the Bulgarian records are: "Bulgarien", 1♀, leg. TSCHORBADJIEV, otherwise unlabelled specimen in NMNHS; Slavyanka Mountain (as "Alibotush"), 1♀, 1.VIII.1930 and 1♂, 16.VIII.1930, leg. TULESHKOV, in coll. NMNHS;

Iskar Gorge, at Tserovo, 1♂ on 12.VI.1961 in coll. LUKOV (SLIVOV, 1970); Bunkera, Vitosha Mountain, 26.VII.1980 (GANEV, 1984); Zemen Gorge, Konyavo (now Konyavska) Mountain, 9.VII.1980 (GANEV, 1984); Kostenets, 4.VIII.1981, leg. KIRIAKOV (GANEV, 1984); Kozhuh, 10.VI.1981 (GANEV, 1984), Polska Skakavitsa, Zemen Mountains, 3♂1♀ 7.VII.2012 and Pasarel, Sofia, 3♂ 30.VI.2014, leg. BESHKOV. Careful searching in July and August may well reveal further stations for this moth within Bulgaria.

The larval pabulum is apparently unknown.

5754 *Alophia combustella* (HERRICH-SCHÄFFER, 1852)

13 records: 1929 – 2014

The genus *Alophia* RAGONOT, 1893 was resurrected as a valid genus by LERAUT (2001) to accommodate the taxon *combustella* (HERRICH-SCHÄFFER, 1852). The moth occurs in southern Europe from Gibraltar to Turkey as far north, in the eastern part, as Romania. In Bulgaria it seems to be present in scattered localities in the extreme southern mountain areas. Kresna provides the first of these, with records on 30.V.1929, 312.V.1929, 1.VII.1932 and 28.VII.1932, all leg. TULESHKOV. It was still here fifty years later, at the Kresna Inn, 7.VI.1986, leg & coll. SZABÓKY. Elsewhere, it was at Kozhuh, 1♂, 23.V.2010, leg, ZLATKOV, SIVILOV & HRISTOV and 7♂1♀ 19.V.2014, leg. BESHKOV, between Kalimantsi and Belyovo villages, 1♂, 22.VII.2010, leg, ZLATKOV, SIVILOV & BEKCHIEV and in the Eastern Rhodopes at Belopolyane, 2♂ 15.VII.2015, leg. PLANT.

LERAUT (2141) notes that the larva is an inquiline within galls caused by aphids (Hemiptera: Aphidoidea) on the leaves of *Pistacia lentiscus* and *P. terebinthus* (Anacardiaceae).

5760 *Pempelia alpigenella* (DUPONCHEL, 1836)

7 records: [1903] – 2013

REBEL (1903) records this species from the Sliven area at Batmish (leg. HABERHAUER) and Chatalka (leg. REBEL), but there is then a rather surprising gap with no further reports until 2010, when a male was taken at light between Voynovo and Strelkovo in Dobrogea, 24.VII.2010, leg. BESHKOV. This particular record is rather surprising given the low altitude of the general locality of the capture. The moth is large and striking, but the absence of records doubtless reflects the lack of study rather than the absence of the species. There are also recent reports from the mountains of the south-west at Livade, at 1925 m. in the Slavyanka Mountains, 1♂ on 23.VII.2010, leg. ZLATKOV & SIVILOV, at Orelyak, 2♂♂2♀♀ at 1900 m. in the Pirin Mountains, 6.VIII.2010, leg. BESHKOV, at Polska Skakavitsa in the Zemen Mountains, 1♀ 7.VII.2012, leg. BESHKOV, east of Paril village at 750 m. in the Slavyanka Mountains, 1♂ on 7.VIII.2013, leg. PLANT and again at Orelyak, with large numbers of both sexes to the light traps on 8.VIII.2013, leg. PLANT. There is apparently a Bulgarian specimen of *P. alpigenella* in the Rome Museum which I have not yet been able to examine. Elsewhere, it is found in France, Italy, the Balkans, Ukraine and southern Russia.

The larval foodplant is said to be *Onobrychis saxatilis*, but there are no larval records from Bulgaria.

[5762 *Pempelia brephiella* (STAUDINGER, 1879)

LERAUT (2014) lists Bulgaria and Macedonia without supporting information. It is possible that boundary confusion between those two countries is responsible for the insect being listed, but as yet I have not found any specimen to support the presence of *P. brephiella* in present day Bulgaria. However, on the basis that it might be overlooked, I have taken the opportunity to illustrate the adult in the colour plates in this review, using a specimen from another country, so that it might be recognised if seen.]

5767 *Pempelia palumbella* ([DENIS & SCHIFFERMÜLLER], 1775)

52 records: 1863 – 2014

This appears to be fairly common species wherever it occurs, but as the distribution map indicates it is restricted to the higher ground in the west and south of Bulgaria. It was first noted by LEDERER from Sliven and Varna (LEDERER, 1863; REBEL, 1903) and it is possible that the species is also present today in the relatively poorly-recorded Stara Planina range. Available records range from sea level to 1925 m. but predominate in the mountainous regions. The flight period in Bulgaria extends from 7 May to 10 September more or less continuously, with the only discernible gap being a two week period from 19 June to 4 July, inclusive.

The larva feeds from within a lengthy silk tube spun up with soil grains at ground level; recorded larval foodplants in other regions of Europe are *Calluna vulgaris*, *Erica herbacea*, *Polygaloides*, *Polygala*, *Thymus serpyllum* and *Helianthemum*.

5766 ***Rhodophaea formosa* (HAWORTH, 1811)**
= *Pempelia formosa* (HAWORTH, 1811)
= *Salebria formosa* (HAWORTH, 1811) *sensu* SLIVOV, 1970

30 records: 1929 – 2013

The genus *Rhodophaea* GUENÉE, 1845 was resurrected as a valid genus by LERAUT (2001). The distribution map suggests that *R. formosa* is likely to prove widespread in Bulgaria. Available data show the species as being found from sea level up to an altitude of 515 m., but it is probable that careful searching will find it in all areas where there is established growth of *Ulmus* trees, upon which the larvae feed. The flight period appears to be from April to September, but closer scrutiny reveals some gaps of two weeks or more so that the actual flight period recorded divides into four units – from 30 April to 17 June, from 2 to 28 July, from 13 – 20 August and then a single report from 14 September. These gaps may or may not be real.

5763 ***Psorosa albariella* ZELLER, 1839**
= *Pempelia albariella* (ZELLER, 1839)

9 records: 2010 – 2013

Examined material is referable to the nominotypical form; the greyer ssp. *dilucida* STAUDINGER, 1879 is reported from adjacent Turkey (e.g., LERAUT, 2014), but has not so far been noted in Bulgaria. The apparent absence of *P. albariella* from Bulgaria prior to 2010 is unexpected and unexplained. Confusion is possible with *P. alpigenella* (DUPONCHEL, 1836), but is unlikely to explain the Bulgarian situation since I have personally examined almost all specimens of both species. The distribution map shows that the moth is known from the south-western mountains, the Eastern Rhodopes, the Stara Planina and the coastal region, from sea level up to 1940 m. altitude. However, it is absent from many site lists, in spite of light trapping having been undertaken in the flight period, and always seems to arrive at the lights in low numbers. The recorded flight period is from 10 June (1 record) then 16 July to 15 September, but with gaps of 2 or more weeks gaps from 21 July to 7 August (inclusive) and 22 August to 11 September (inclusive). Elsewhere, it is found in southern Europe (mainly the Mediterranean seaboard) from Iberia to Italy, and then extends northwards and further east through Hungary and Romania across southern Russia. LERAUT (2014) shows a presence along the northern part (only) of the eastern Adriatic coastline and also in Macedonia, but it is apparently absent from most of the former Yugoslav Republic and from Greece. LERAUT (2014) regards it as a species of dry habitats "up to mid-mountain level".

Elsewhere, the larvae are recorded feeding on *Astragalus aristatus* and *Chamaecytisus supinus*.

5774 ***Psorosa dahliella* (TREITSCHKE, 1832)**
= *Pempelia dahliella* (TREITSCHKE, 1832)

17 records: 1917 – 2014

Freshly emerged examples of *P. dahliella* are recognisable on wing pattern alone, but worn examples, especially those damaged in light traps, are rarely so convincing. In such situations, genitalia examination is desirable for correct determination. The earliest record is from Kresna, 1♂, 19.IX.1917, leg. ILITSCHEV, in coll NMNHS. Kresna features again in the record with reports of this species from there on 5.VI.1930, 1♀, leg. TULESHKOV., in coll. NMNHS and then from the area of the Kresna Railway Station, 6.VI.1986, leg. SZABÓKY, sex not recorded. Other historical records are from Tarnovo, 1♂, 24.VII.1928, leg. TULESHKOV, in coll. NMNHS; Strandzha, 2♂♂, 6.VI.1929, leg. TULESHKOV, in coll. NMNHS; Balchik area, 1♂, 18.VII.1930, (POPESCU-GORJ, 1964); Hissar, 1♀, 15.X.1953, leg. KARNOZITZKI, in coll. NMNHS and the Iskar Gorge at Lakatnik village, 1♂ found dead in an electric lamp, ix.1964 (SLIVOV, 1970). Material in NMNHS has been seen by me, but I have not seen the specimens collected by either POPESCU-GORJ or SLIVOV. There are also two female specimens from Belovo, leg. MILDE, in coll. NMNHS, but neither is dated. More recently, *P. dahliella* has been collected from near the Bukelon Fortress at Matochina, in the Sakar Hills, 1♀ 22.VII.2011, leg. BESHKOV, Egrek, 1♂, 13.VIII.2011, Zheravna, 1♂, 16.VIII.2012, Kamchia – Shkorpilovtsi, 3♂♂, 20.VIII.2012, Alfatar - Vasil Levsky, 2♀♀, 23.VIII.2012, Chukovets, 1♀, 23.VIII.2012 and near the summit of Kongur, Belasitsa Mountains, 1♂ 27.VIII.2014 – all leg. BESHKOV and all seen by me. The website at *www.lepiform.de*, accessed during 2015, has an image of *P. dahliella* from Petrich, 21.VII.2012, leg. GRAF.

***Psorosa nucleolella* (MÖSCHLER, 1866) and *Psorosa mediterranella* AMSEL, 1953**
In his updated inventory of the Pyralidae of France, LERAUT (2007) commented that an examination of the collections in the MNHN Paris showed that all French examples of *Psorosa nucleolella* are in fact referable to *P. mediterranella*. *Psorosa nucleolella* is evidently absent from France, but *P. mediterranella* is widespread in the south of that country. ASSELBERGS (2009) added *P. mediterranella* to the fauna of the Canary Islands and commented that former records of *P. nucleolella* from the Islands probably also refer to this species. The adults of the two species are identical in appearance and cannot be separated "by eye"; genitalia examination is essential for correct determination. Although it seems fairly clear that *P. nucleolella* is the dominant species in the east, the eastern limit of the range of *P. mediterranella* is unknown and it is quite possible that the same two species have been confused in Eastern Europe as well as in the west. It is certainly the case that both species are resident in Bulgaria. Voucher material should be retained.

5775 ***Psorosa nucleolella*** **(MÖSCHLER, 1866)**
= *Pempelia nucleolella* (MÖSCHLER, 1866)
= ?*strictella* MANN 1861

7 records: 1930 – 2011

Almost all of the confirmed Bulgarian reports of *nucleolella* are from the south-west of the country in the Kresna area, whence the first is of a female at 600 m. on 2.VIII.1930, leg. TULESHKOV, in coll. NMNHS. Material was also collected here in the 1980's by SZABÓKY – Kresna Railway Station, 6. vi.1986, Kresna Inn, 7.VI.1986, Kresna Railway Station, 11-12.VI.1986, but none of these specimens appear to have been dissected and the possibility that some might be *P. mediterranella* cannot be ruled out. ZLATKOV also records *P. nucleolella* from Kresna, at 260 m., 1♂ 14.VIII.2006 (dissected by me). However, this apparently restricted distribution pattern is disrupted by a female caught in the coastal region at Tuzlata, 15.IX.2010, leg. ZLATKOV and the three female examples collected in the north-west at Voinitsa, 10.IX.2011, by BESHKOV (again, all dissected by me). It is likely that *P. nucleolella* is widespread in both mountainous and lowland areas of Bulgaria, especially in the southern border area with Greece and Turkey, although it appears unlikely to appear at light traps in particularly large number.

5775a ***Psorosa mediterranella*** **AMSEL, 1953**

1 record: 2010 – 2010

The confusion between this species and *P. nucleolella* has been mentioned above. For Bulgaria we have just one record of *P. mediterranella* – from the Kresna area at 600 m. altitude, 1♂ on 26.V.2010, leg. O. KARSHOLT in coll. ZMUC. FRANTISEK SLAMKA tells me (pers. comm., 11.XI.2015), that he has examples of *P. mediterranella* from Macedonia (Lake Ohrid) and in my opinion it is likely that this is an overlooked species, both in Bulgaria and throughout the Balkan Peninsula.

Genus *Dioryctria* ZELLER, 1846
The separation of species within this genus seems to present an area of confusion for many people (at least in Britain). Of the seven European species, two can be recognised fairly easily in the field, but the other five, especially worn specimens from the bottoms of moth traps, often present a challenge. Confusion lies mostly in separation within species-pairs, especially *sylvestrella* (Ratzeburg, 1840) from *abietella* ([DENIS & SCHIFFERMÜLLER], 1775) and also *schuetzeella* FUCHS, 1899 from *simplicella* HEINEMANN, 1863. *D. schuetzeella* has not yet been recorded from Bulgaria and it may be genuinely absent, since the European distribution is predominantly western. However, KARSHOLT & RAZOWSKI (1996) show that it is recorded in Romania and so it would be worthwhile to search the northern border area of Bulgaria wherever there is suitable habitat (the larva feeds on *Picea*, including *Picea abies*). The male genitalia of these confusion species-pairs usually provide satisfactory characteristics for safe separation but worn females might, on occasion, be impossible to name with certainty. I have been at great pains to ensure that data included in the record below is correct.

5781 ***Dioryctria sylvestrella*** **(RATZEBURG, 1840)**
= *splendidella* misidentification

4 records: [1967] – 2013

As is the case with so many species, the bulk of the records are from the south-west, including the first, chronologically, from Borovets (as *splendidella* HERRICH-SCHÄFFER) given in SOFFNER (1967). SOFFNER gives the month as July; no year is stated, but as I have no records that pre-date the 1967 publication, then this year becomes the first possible date for the species in Bulgaria. That said, there is, allegedly, a Bulgarian specimen of *D. sylvestrella* in the Rome Museum (ZILLI, pers. comm.) but I have not yet been able to examine this either to confirm the identification or to extract data from the label. There are also records from Ribaritsa (Lovech) 10.VIII.2012, leg. BESHKOV and near Paril in the Slavyanka Mountains (Blagoevgrad), 7.VIII.2013, leg. PLANT. The south-west monopoly is broken by a male collected in the Stara Planina above Osenovlag, 5.IX.2011, by BESHKOV, genitalia examined by me and by another at light in the hills to the north of Sliven, 18.VII.2015, leg. PLANT & ZLATKOV.

D. sylvestrella is undoubtedly under-recorded in Bulgaria; it is likely that future survey effort will prove it to be a more widespread species in all regions where the larval foodplant (*Pinus*) grows.

5783 ***Dioryctria simplicella*** **HEINEMANN, 1863**
= *mutatella* (FUCHS, 1903)

10 records: 2003 – 2014

The distribution map in LERAUT (2014) indicates that this species has a northern distribution in Europe. Neither that work nor KARSHOLT & RAZOWSKI (1993) list it for Bulgaria, although both note its presence in Romania. With this in mind it is interesting that the earliest available record was made as recently as 2003, when examples were caught in

light traps at 260 m. altitude, between Shiroko Pole and Sedlovina villages, Kardzhali district, 20.X.2003, by BESHKOV, BERON & PETROV (BESHKOV & LANGOUROV, 2004). The apparent absence of older museum material raises the possibility that this species is a recent colonist of Bulgaria; against this is the fact that that most reports are from the south (rather than just over the border from Romania) suggesting that it might be an overlooked resident. There are other reports from the south-west, such as from the Pirin Mountains at Orelyak, 1900 m., 6.VIII.2010, leg. BESHKOV and at Goleshova village in the Slavyanka Mountains, 2♂ 28.VIII.2014, leg. BESHKOV, but I have also taken it myself at light, 1♂, 2♀♀, in the company of Tony PICKLES, on the coastal landslip cliffs between Balchik and Topola, 15.IX.2010. It should be recorded, however, that this latter date was during a period of high Lepidoptera immigration activity and so the specimens caught at this site on the Black Sea coast may well have been primary immigrants. The extremely limited evidence available suggests that the reports from the south-western mountains are more likely to refer to a resident population and on this basis it is fair to say that the species is probably overlooked for want of people collecting microlepidoptera in Bulgaria.

The larvae are associated with *Pinus*.

5784 ***Dioryctria abietella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

30 records: 1962 – 2014

The distribution map shows that most records of *D. abietella* are confined to areas of suitable habitat in the upland regions of the south-west and south, extending eastwards through the Rhodopes along the Greek border but apparently not in the border area with Turkey further east. The apparent absence from the Stara Planina is surprising, though may simply represent under-recording. The larvae require *Pinus* and perhaps other conifers and where suitable forest habitat is established this moth can be abundant in light traps. In terms of altitude, the moth is recorded at sites falling between 285 and 1980 m.. The genitalia of the following specimens, arranged chronologically, were probably not examined, but the identification is regarded as correct and the records are included in the distribution map: Iskar Gorge – Svoge, 27.VI.1965, 1♀ caught in the evening in the pine-tree forest above the town (SLIVOV, 1970); Borovets, July (SOFFNER, 1967); Bunkera, Vitosha Mountain, 31.VII.1979 (GANEV, 1984); Chepelare, Rhodopes Mountains, 5.VIII.1981 (GANEV, 1984); Trigrad, 5.VIII.1982 (GANEV, 1984); Rozen Pass, Rhodopes Mountains, 30.VII.1982 (GANEV, 1984); Izgrev, Rhodopes Mountains, 31.VII.1982 (GANEV, 1984); Ossogovo, 2.VII.1981 (GANEV, 1984); Persenk mine, Rhodopes Mountains, 16.VIII.1980 (GANEV, 1984); Skakavitsa, Rila Mountains, 16.VII.1980 (GANEV, 1984). All other records have been critically appraised, in most cases by me.

5786 ***Dioryctria mendacella*** **(STAUDINGER, 1859)**

1 record: 1965 – 1965

The single record is from the Iskar Gorge near Cherepish, 25.VIII.1965, "one old specimen at Petromax light" (SLIVOV, 1970). Since this seems to be the only Bulgarian record it is rather odd that SLIVOV did not make reference to the fact. I have not yet been able to locate the voucher specimen to ascertain whether or not it was correctly identified, although *D. mendacella* is fairly distinctive. KARSHOLT & RAZOWSKI (1996) indicate a presence to the south in Greece and to the west in the former Republic of Yugoslavia. Reference to the *Fauna Europaea* website in December 2015 indicates that the latter refers to Bosnia-Herzegovina. The distribution map in LERAUT (2014) confirms this and indicates that the European distribution of *D. mendacella* is circum-Mediterranean (includes the Adriatic Sea). So, a presence in Bulgaria is not necessarily unexpected, but there is a clear need to locate the specimen, if it exists, to validate the report. The larva feeds on ripening seeds within the cones of *Pinus* and according to LERAUT (2014) is recorded on *P. halepensis, P. pinaster* and *P. pinea*. Large bags of pine cones collected in winter and then brought indoors the following spring may well produce adult moths.

Genus *Phycita* CURTIS, 1828

There has been considerable confusion in regard to the European species within this genus. *Phycita nephodeella* RAGONOT, 1887, reported from Italy and the former Yugoslavia by KARSHOLT & RAZOWSKI, 1996) and *P. pedisignella* (RAGONOT, 1887) stated by the same authors to be present in Greece and the former Yugoslavia are still something of a mystery and so far it has been impossible to locate any material of either species. *Phycita imperialella*, described in *Nephopterix* HÜBNER, 1825 and transferred via *Sciota* HULST, 1888 to *Phycita* CURTIS, 1828 by LERAUT (2014: 296) is here transferred to genus *Bradyrrhoa* ZELLER, 1848; it is discussed under that species heading below. Remaining species have been reviewed by PLANT & SLAMKA (2016) in which publication a new species, *Phycita cryptica* was defined. In Europe as a whole, most reports of the taxon *metzneri* ZELLER probably refer to *cryptica* PLANT & SLAMKA. However, some literature sources, including a recent popular guide (LERAUT, 2014), illustrate the genitalia of *P. torrenti* incorrectly captioned as belonging to *P. metzneri* and this has doubtless been responsible for many incorrect identifications; *P. torrenti* AGENJO is by no means endemic to Iberia as many texts suggest and it occurs along much of the northern Mediterranean coast and is fairly widespread in Bulgaria. The type specimen of *metzneri* ZELLER is actually a female of *poteriella* ZELLER and this will have further added to the confusion. Although fresh examples of *Phycita* are likely to be easily named from gross morphological features, experience has shown that following genitalia examination, worn examples frequently

turn out to be a different species from that originally supposed. The genital apparatus of both sexes present clear and easy identification features; these are illustrated in PLANT & SLAMKA (2016). Six species of *Phycita* are recognised in the Bulgarian fauna; one other species has been recorded in error. The everted vesica of the aedeagus of the males of these six species are drawn here in Fig. 12.

[5721 *Phycita imperialella* (RAGONOT, 1887)
Transferred in this work to genus *Bradyrrhoa* Zeller, 1848 – see below]

5791 *Phycita cryptica* PLANT & SLAMKA, 2016
= *Phycita metzneri* (ZELLER, 1846) nec auctt. partim
= *torrenti* AGENJO, 1963 partim

15 records: 1932 – 2015

Bulgaria provides the type locality of *Phycita cryptica*, which is in the hills above Sliven town. As a consequence of the confusion between this species and *P. torrenti*, no record of either species can be accepted here unless the genitalia slide has been examined. Regrettably, this means that there is only a single reliable historical record – from West Balkan, 7.VII.1932, leg. TULESHKOV, in coll. NMNHS. Sadly, the record does not give enough detail to permit mapping. Modern records are more frequent and are from a wide range of sites across the south at in the east; the moth is numerically common in both these general areas. It is worth adding that *P. cryptica* is perhaps an eastern species and so specimens identified as "*metzneri*" collected in Western Europe ought to be re-examined, as it is possible that they might be *P. torrenti* rather than *cryptica*. The larvae are reported to feed on various species of *Quercus* (DE-GREGORIO et al., 2012). This is potentially correct, but past problems of identification mean that records will require individual verification. At present, we have no larval foodplant data from Bulgaria.

5792 *Phycita meliella* (MANN, 1864)

22 records: 1918 – 2015.

This is probably the most widespread member of the genus in Bulgaria after *P. roborella*, and has been reported from many areas. Historical records are from Sliven, 1♀, 8.VIII.1918, leg. TSCHORBADJIEV, Slavyanka (as Alibotush), 1♀, 1925, leg. DRENOWSKI and 1♀, 1.VIII.1930, leg. TULESHKOV – all in the collections at NMNHS and all dissected by me. In recent years it has been recorded from the coastal cliff ledges in the Balchik area by me on 14.VIII.2009 and from the Ropotamo Reserve, 28.VII.2011, leg. BESHKOV. Also reported from several localities along the southern border region, with the most recent reports from Belopolyane, 15.VII.2015 and Mezek, 17.VII.2015 – both by myself.

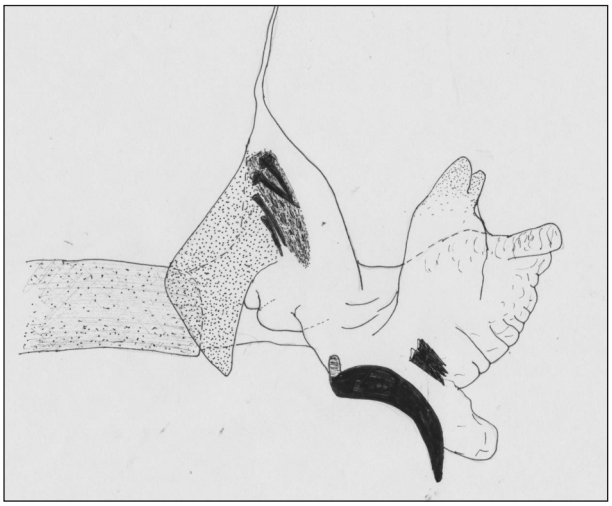
The larvae are associated with *Fraxinus* – evidently on the flowers since RAGONOT (1893), states that "Mann a trouvé les chenilles dans les fleurs du frêne (*Fraxinus*) et le papillon paraît en juillet). As with most species, larval records from Bulgaria are lacking.

5793 *Phycita poteriella* (ZELLER, 1846)
= *Phycita metzneri* auctt. nec ZELLER, 1846.
= *Phycita kruegeri* TURATI, 1911
= *Nephopteryx poteriella* ZELLER, 1846

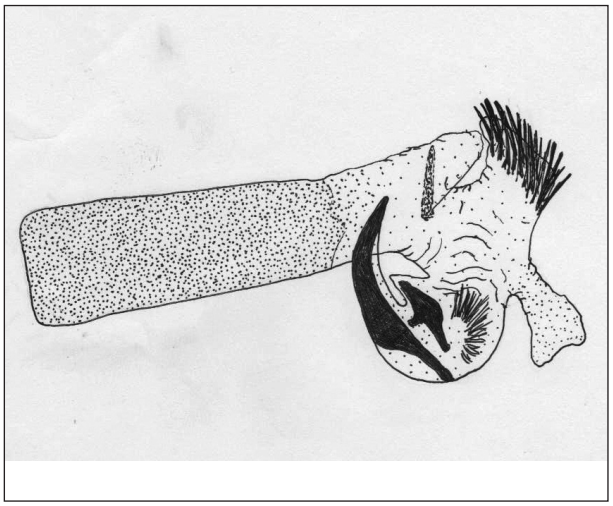
9 records: 1986 – 2012

Reliable records come from the largely mountainous southern part of the country, but as with many other species this reflects habitat availability rather than altitude. LEDERER (1863) also lists Sliven and this same record is repeated by REBEL (1903) who also refers to an additional specimen "collected by HABERHAUER in the Hofmuseum" from the Sliven area. Unfortunately, because of past taxonomic confusion, these reports must be treated as unconfirmed. Our first positive record is, therefore, that from the area of Melnik – Rozen, 8.VI.1986, leg & coll. SZABÓKY. During July 2011, extensive surveying by BESHKOV produced specimens from five separate places: Brestovitsa, Western Rhodopes, 1♂, 18.VII.2011, Ada Tepe Hill, 3♂♂, 21.VII.2011, Matochina (Bukelon Fortress), 4♀♀, 22.VII.2011, in the Dervent Hills at Kraynovo, near Voden, 1♂, 23.VII.2011 and near the summit of Kongur, Belasitsa Mountains, 1♂ 27.VIII.2011 – all material having been dissected by me. The same diligent collector also caught 2♂ at Malko Tarnovo, in the Strandzha Mountains, 31.VII.2012. Another possible example is a specimen under the label "*poteriella*" and preserved in the Rome Museum (ZILLI, pers. comm.), but I have not yet examined this to confirm the identity or to extract the locality data and so it is omitted from the database for the time being. It seems probable that *P. poteriella* is widespread but under-recorded in Bulgaria.

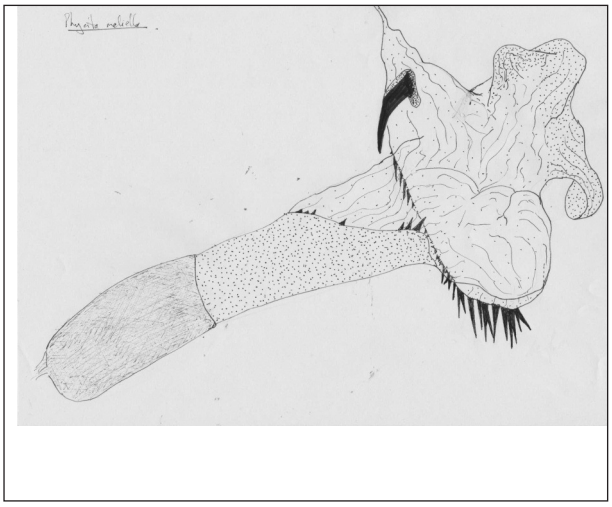
The larvae feed on *Poterium spinosum* (RAGONOT, 1893) and also *Ricinus communis* (BALACHOWSKYI, 1972; RUNGS, 1979).



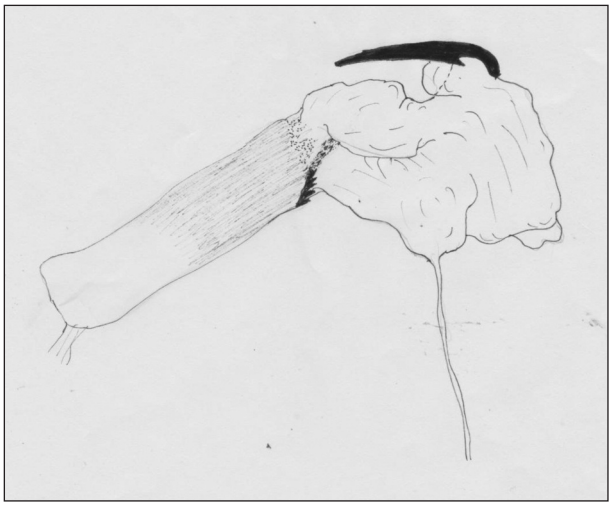
Phycita coronatella (Guenée, 1845) Bulgaria, Mezek, 17.VII.2015.



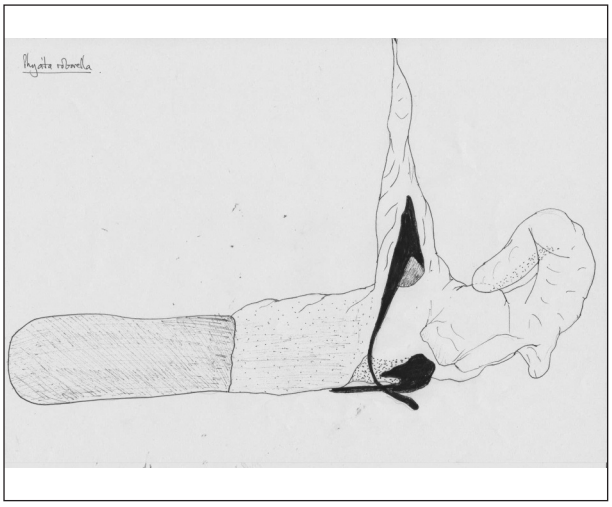
Phycita cryptica Plant & Slamka, 2016. Bulgaria, Meden Buk, 15.X.2015.



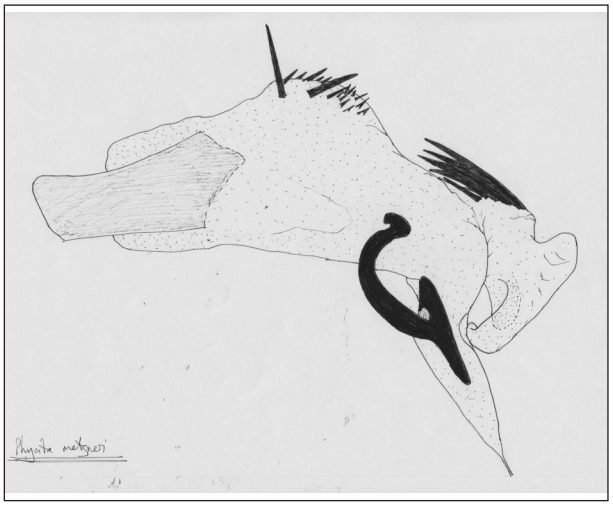
Phycita meliella (Mann, 1864) Bulgaria, Chengene Skele, 29.VII.2011.



Phycita poteriella (Zeller, 1846) Bulgaria, Brestovitsa, 18.VII.2012.



Phycita roborella ([D. & S.], 1775) Bulgaria, Kresna Gorge, 31.VII.2013.



Phycita torrenti Agenjo, 1963 Bulgaria, Odrintsi, 14.VIII.2011.

Fig. 12: Everted vesica of the aedeagus of male *Phycita* species from Bulgaria.

5795 *Phycita torrenti* Agenjo, 1963

7 records: 2010 – 2014

The correct date of the description of this species is 1963, not 1962 (e.g., Karsholt & Razowski, 1996). The confusion has arisen because the original description (Agenjo, 1963) is published in a journal that reports on the year 1962, but which was not published until 1963. As noted above, *P. torrenti* is not endemic to Iberia; it is, perhaps, misplaced trust upon the reliability of statements that it is so limited, which has led to illustrations of the genitalia of *P. torrenti* being wrongly labelled as belonging to "*P. metzneri*" (e.g., Leraut, 2014, page 295, figure 96a). Because of this confusion, no record of *torrenti* can be accepted here unless the genitalia slide has been examined, but it is most likely that this species will prove to be widespread and not uncommon in areas where suitable habitat persists. That said, there at presently rather fewer reliable records of *torrenti* than there are of *cryptica*. These include from below the Belasitsa Chalet, 1♂, 28.VIII.2010, leg Beshkov; in the hills above Kresna railway station, 2♂♂, 21.IX.2010, leg. Plant & Pickles; Odrintsi (Kodzhakaya), 2♂2♀, 14.VIII.2011, leg. Beshkov; Madzharovo, near Borislavtsi, 1♂, 20.VII.2011, leg Beshkov; Dolni Varpishta (Stara Planina), 1♀, 14.VIII.2012, leg. Beshkov and Odrintsi village, East Rhodopes, 1♀ 16.III.2014, leg. Beshkov.

Leraut (2014) gives the larval foodplant as *Quercus ilex*. There seems to be no reason to doubt this, since the evidence is from Spain, where *P. metzneri* appears to be absent. However, it is most desirable to obtain a host plant record from Bulgaria.

5796 *Phycita roborella* ([Denis & Schiffermüller], 1775)
= *spissisella* (Fabricius, 1776)

77 records: 1933 – 2015

This is far and away the most widespread and abundant member of the genus in Bulgaria and the fact that most records relate to the south-west quarter of the country reflects the efforts of entomologists rather than the moth's true range. It is present throughout the southern area, in the central band that is the Stara Planina and also in the far north-east where, by way of example I caught several examples at MV light by Durankulak, on the Black Sea coast adjacent to the Romanian border, on 17.VIII.2009. Indeed, it is likely to be found wherever deciduous oak trees (*Quercus* spp.) grow, regardless of altitude. The adult is recorded on the wing in Bulgaria more or less continuously from 15 July to 30 August; the only record outside this period is of a single male on 13.IX.1968 at Velingrad, leg. H. Lukov.

The larva feeds on deciduous oaks (*Quercus* spp.) in other European countries, but there are 17 species of *Quercus* in Bulgaria (Assyov, 2012) and we have no knowledge at all of which of these species are utilised. Leraut (2014) also mentions evergreen oak *Quercus ilex* and adds that there are also reports from *Malus* and *Pyrus*.

5797 *Phycita coronatella* (Guenée, 1845)

4 records: 1937 – 2015

This appears to be an extremely localised species in Bulgaria. The earliest record is of a male in coll. NMNHS, labelled "West Balkan", collected 7.VII.1937 leg. Tuleshkov and dissected by me during 2012. A single male was collected by the bridge above Sugarevo village, 17.VI.2010 by Zlatkov & Sivilov (also dissected by me). Examples taken at Kotel, near Sliven, 2.VII.2010, leg. Bech, Top-Jensen & Larsen, were originally identified, incorrectly, as *P. pedisignella* (see next species). Most recently I caught examples of both sexes near the Greek border at Mezek, 450 m., 17.VII.2015, in the company of Zlatkov and Beshkov. A further possible example is a specimen under the label "*coronatella*" and preserved in the Rome Museum (Zilli, pers. comm.), but I have not yet examined this to confirm the identity or to extract the locality data and so it is omitted from the database for the time being.

The larvae feed on *Acer campestre* and other species of *Acer* (De-Gregorio et al., 2012).

[5798 *Phycita pedisignella* (Ragonot, 1887)

Examples from Kotel, near Sliven, 2.VII.2010 leg. Bech, Top-Jensen & Larsen originally identified as this species by a third party, refer to *P. coronatella* (Guenée, 1845). There are no reliable records of *P. pedisignella* from Bulgaria.]

Genus *Hypochalcia* Hübner, 1825
This is another genus in which there is a significant number of taxonomic problems, with many forms having been rather too hastily named as full species. Some attempt has been made to sort the chaos (e.g., Leraut, 2002), but interpreting old, published records all too often remains a matter of judgement unless the voucher specimens can be examined. Leraut (2014) lists six European species, of which only two – *H. decorella* Hübner, 1810 and *H. lignella* Hübner, 1796 – are not yet reported from Bulgaria. However, both

are present in Romania to the north, the former Yugoslav Republic to the west and Greece to the south. It seems likely therefore that these missing species might well be found here if more people were to collect moths in this entomologically rich country and if people do not dismiss damaged examples of "probably *ahenella*" without first checking the genitalia.

5804 ***Hypochalcia dignella* (HÜBNER, 1796)**

2 records: [1903] – 1929

REBEL (1903) records this south-eastern European species in small number in Sliven, noting that the specimens are smaller and with blackish hind wings, which he attributes to var. *insuadella*, adding that this form is also the predominant one in Romania. Interestingly, the only other available record is also from Sliven, a specimen collected on 7.VI.1929. This example, which is housed in the collections of Természettudományi Museum, Budapest, was illustrated in SLAMKA (1997). There are no more recent records.

The larval foodplant is unknown.

5806 ***Hypochalcia balcanica* RAGONOT, 1887**

1 record: [1893] – [1893]

REBEL (1903) records an example of this species from the "Balkan Mountains" adding that this was almost certainly taken at Sliven by CARADJA. He continues with a comment that he regards the separation of this taxon from *H. rubiginella* TREITSCHKE, 1832, very doubtful. Leraut (2014) comments "*Hypochalcia balcanica* RAGONOT, 1887 appears to be a separate species, but, not having seen the type, the author does not know its true status (needs studying, therefore)". I can add nothing, because I too have never seen this species. Careful reading suggests that the reference to *H. balcanica* in RAGONOT (1893) appears to relate to the same report that was later mentioned by REBEL, so that 1893 becomes, if only provisionally, the date for this species and this is currently the only Bulgarian record.

[5808 ***Hypochalcia ghilianii* STAUDINGER, 1870**
Listed for Bulgaria as a full species by KARSHOLT & RAZOWSKI (1996), but here treated as a synonym of *H. ahenella* ([DENIS & SCHIFFERMÜLLER], 1775)] in accordance with LERAUT (2002: 172).]

5811 ***Hypochalcia ahenella* ([DENIS & SCHIFFERMÜLLER], 1775)**
= *rubiginella* TREITSCHKE, 1832
= *ghilianii* STAUDINGER, 1870
= *gianelliella* RAGONOT, 1887 (vide KARSHOLT & RAZOWSKI, 1996)
= *caucasica* RAGONOT 1893
= *lugubrella* HERING, 1924

7 records: [1903] – 2015

REBEL (1903) refers to receiving a specimen for identification from the Sofia area, but gives no further details. Balchik area ("as *rubiginella* Th."), ♂♂ on 6.VII.1929, 25.VI.1930, 28.VI.1930 & 30.VI.1930 (Popescu-Gorj, 1964). It is not immediately clear which author is implied by "Th." – possibly THUNBERG. I am aware of only three pyralid taxa to which the epithet *rubiginella* has been applied, namely *Hypochalcia rubiginella* TREITSCHKE, 1832, *Acrobasis rubiginella* INOUE, 1982 and *Adelpha rubiginella* WALKER, 1863. I am forced to the conclusion that POPESCU-GORJ might have made a mistake and that *rubiginella* TREITSCHKE was intended. Apart from these records, *H. ahenella* is reported by DRENOWSKI (1925) from the Rhodopes Mountains – repeated by TULESHKOV & SLIVOV (1975). The species remains either rare or seriously under-recorded, almost certainly the latter, with only three records – from Zmeitsa, 4♂, 16.VI.2012, leg. BESHKOV, in the Pirin Mountains at the summit of Sharalia, 1200 m., 1♂, 8.VI.2014, leg. BESHKOV and the hills above Yagodina village at 1340 m., 13.VII.2015, leg. PLANT. These are all in the mountains of the south-west.

According to LERAUT (2014), the larvae feed on *Helianthemum vulgare* and *Artemisia campestris*.

5816 ***Hypochalcia subrubiginella* RAGONOT, 1897**
= *gianelliella* RAGONOT, 1887

1 record: [1903] – [1903]

Listed as a valid species by KARSHOLT & RAZOWSKI (1996), this taxon was treated as a subspecies of *H. propinquella* GUENÉE, 1845 by Leraut (2002), but later raised again by him (LERAUT, 2014) as a valid species. REBEL (1903) records an example, as "*subrubigenella* Rag.", sent to him by HABERHAUER from Sliven, matching perfectly with the figure given by RAGONOT (1897) and takes the opportunity to add a rude comment about RAGONOT describing "mere forms as proper species". I am not aware of any other records. The larval foodplant appears to be unknown.

5825 ***Epischnia ampliatella*** **Heinemann, 1864**

3 records: 2010 – 2015

Until recently, *E. ampliatella* was included under the label of *adultella* Zeller, 1848. However, based on an examination of the types, Leraut (2014) reported that *ampliatella* Heinemann, 1864 and *adultella* Zeller, 1848 are both valid species. The three Bulgarian records of *ampliatella* all affect the south-eastern mountain zone: A single female was caught at an altitude of 515 m. above the village of Ilindentsi, in the Struma Valley, on 7.V.2010 by Zlatkov and colleagues; a male was captured in my light trap at Orelyak, 8.VIII.2013, leg. Plant and several examples were captured at mv lights at 1340 m., above Yagodina village in the south-west, near the Greek border, 13.VII.2015, leg. Plant, Beshkov & Zlatkov. The species is probably overlooked and is likely to be present in the wider sub-montane area of southern Bulgaria.

The larval foodplant appears to be unknown.

5827 ***Epischnia prodromella*** **(Hübner, 1799)**

34 records: 1917 – 1915

An examination of unidentified material in NMNHS has revealed a presence of this species in Bulgaria since 1917, and there can be no doubt that it is a member of the resident native fauna. It is widespread and usually common in the west and the south and is also noted in the eastern lowlands towards the Black Sea as well as in the Stara Planina that extends across the centre of the country. In terms of altitude, *E. prodromella* is found from sea level (e.g., Durankulak, 14.IX.2010, leg. Plant) to 1600 m. in the Rila Mountains. The available information suggests that there are probably three generations of adults in each year, from the very end of April (30th) to late May (23rd), from the start of July (1st) to the first week of August (8th) and then from late August (24th) to late September (21st), although as the number of records increases this analysis may need refinement.

The larval foodplants are *Centaurea* spp. and *Knautia* spp., and the species is likely to be even more widespread than the available records indicate.

5830 ***Epischnia illotella*** **Zeller, 1839**

15 records: 2009 – 2015

There do not appear to be any examples of this species collected before 2009 and one is drawn to wonder if there has been past confusion with the last species, *E. prodromella* (Hübner, 1799). Care has been taken, therefore, to verify all records included in this review, both in the hope of finding earlier examples of *E. illotella* and also to avoid artificially inflating the inventory of *E. prodromella*. There are records of *E. illotella* from the Stara Planina at Dolni Varpishta, 2♂1♀, 14.VIII.2012, leg. Beshkov and from the coastal region at Cape Kaliakra, 1♂, 25.V.2011, 1♀, 8.VI.2011, Kavarna, 1♀, 26.VIII.2011, and the Varna area, 1♂, 10.VI.2011, all leg. Larsen. There are other reports from the southern mountains and hills along the border with Turkey and Greece between 2009 and 2015. All material has been seen and dissected by me. The recorded altitudinal range of the species is from sea level to 1400 m.. Adults have been recorded in Bulgaria from the last week of May (24th) to mid June (17th) then late July (20th) to the end of August (29th), suggesting a bivoltine life cycle.

The larval food plants are cited by various authors as *Inula montana*, *Inula crithmoides* and *Astericus spinosus*.

5835 ***Epischnia asteris*** **Staudinger 1870**
= *bankesiella* Richardson, 1888

1 record: 2013 – 2013

A single male of *E. asteris* was amongst material collected by Beshkov at Zlatolist, in the Eastern Rhodopes, on 15.X.2013 and passed to me for examination. The discovery of this species in Bulgaria is very surprising: the distribution map in Leraut (2014) confirms perceived wisdom that it is a species of western Europe, with the most easterly stations on the border on France and Italy on the Mediterranean coast and on Corsica. The distribution map, updated in 2013, on the Fauna Europaea website is less detailed, but gives the same message, except that Corsica is excluded. The locality of capture is an unlikely location for human-aided importation and it must be supposed that either this was an immigrant example or the distribution of *E. asteris* is more extensive than previously thought. The geometrid *Rhodometra sacraria* (Linnaeus, 1767) as well as noctuid moths including *Spodoptera exigua* (Hübner, 1808), *Chrysodeixis chalcites* (Esper, 1789), *Autographa gamma* (Linnaeus, 1758), *Eublemma parva* (Hübner, 1808), *Noctua pronuba* (Linnaeus, 1758), *Agrotis ipsilon* Hufnagel, 1766) and *A. segetum* ([Denis & Schiffermüller], 1775) were also captured on that warm night (Beshkov, pers. comm.). These are frequent immigrant species in Bulgaria; their presence does not necessarily indicate immigrant activity on that particular date, although it is clear that such activity might have taken place recently.

The larvae of *E. asteris* feed on *Inula crithmoides* and *Aster tripolium* and should certainly be looked for at the Zlatolist site.

5846 ***Lymphia chalybella* (EVERSMANN, 1844)**
nec *acraspedella* Staudinger, 1879

2 records: 2002 – 2012

LERAUT (2014) synonymised *Catastia (= Hypochalcia) acraspedella* STAUDINGER, 1879 with *Lymphia chalybella* (EVERSMANN, 1844). His opinion that it is only a form of *chalybella* was based on the illustration and diagnosis given by RAGONOT (1901), but he had not been able to examine the type. The situation has been discussed above under the heading of 5701: *Catastia acraspedella* STAUDINGER, 1879 and LERAUT's synonymy is, therefore, revoked.

The first record of *Lymphia chalybella* for Bulgaria was made by myself, on an open grassland slope in the Osogovo Mountains at 1300 m., 22.V.2002, with at least 10♂♂ 10♀♀ to 125-watt mv light at a vertical sheet just a few paces from the side of the road (see PLANT et al., 2003); the moths arrived a few minutes after darkness and remained, at rest, on the sheet al.l night. There is only one other record, made coincidentally by another English collector when ALAN OUTEN recorded this species at Vihren, 4.VIII.2012 during a wildlife tour led by MARIO LANGOUROV. The paucity of records of this species is surprising, although Bulgaria forms the westerly limit of its distributional range (apart from an isolated population in the French Alps). It is less likely to have been overlooked than many other species, on account of its reflective, bright metallic-green colour and under mv light is not unlike an elongated *Adscita* species (Zygaenidae).

Knowledge of the larval foodplant, if known, appears to be unpublished.

5848 ***Nephopterix angustella* (HÜBNER, 1796)**
= *Alispa angustella* (HÜBNER) sensu SLIVOV, 1970

12 records: 1964 – 2012

Slivov (1970) is the source of the first Bulgarian record of this species, made at Lakatnik, in the Iskar Gorge, where a single male was encountered on 19.V.1964. GANEV (1984) reports the next from Prekolnitsa, west of Kyustendil, 22.VIII.1976. All other records have been made more recently, between 2009 and 2012. The moth appears to be widespread and fairly common, occurring from sea level on the Black Sea coast up to just below 900 m. at Prekolnitsa (altitude estimated from *Google Earth.com*). The absence of the moth from samples taken at much higher altitudes may be real, though its distribution is likely to be as much influenced by the larval foodplant, *Euonymus europaeus*, as by any other factor. Adults have been recorded from late April to early September, but with gaps. The number in the sample is too small for proper analysis but might suggest a bivoltine ecology with records from late April (30th) to mid May (19th) then mid July (16th) to early September (9th).

5850 ***Oxybia transversella* (DUPONCHEL, 1836)**

11 records: 1863 – 2014

Our earliest records are from Varna and Sliven (LEDERER, 1863, repeated in REBEL, 1903). Also recorded by REBEL for "Dobrudscha" – an area that overlaps between Bulgaria and Romania. SLIVOV (1970) gives a record for the Iskar Gorge at Lakatnik, 12.VI.1966, 1♂ from bushes above the fisher's house and then in 1995 it was taken in three locations in the south at Melnik, 14.IX.1995, two (GOATER, 1996; BESHKOV & GOATER, 2000); Byalo Pole (Belopolyane) village, Ivailovgrad region, 21.IX.1995, one (GOATER, 1996; BESHKOV & GOATER, 2000; BESHKOV & LANGOUROV, 2004) and near the Studen Kladenets dam, 29.IX.1995 (GOATER, 1996; BESHKOV & GOATER, 2000). More recently, there are records from the Novo Hodzhovo Marsh, 1♂, 15.X.2010. leg. ZLATKOV, Zlatolist in the Eastern Rhodopes, 1♂, 15.X.2013, leg. BESHKOV and near Odrintsi in the East Rhodopes, 1♂ 16.VIII.2014, leg. BESHKOV. These data suggest a double-brooded species, with adults in June/July and then mid September to mid October.

In western Europe, the larvae feed on *Psoralea bituminosa*.

Genus *Acrobasis* ZELLER, 1839

LERAUT (2005) synonymised the genera *Conobathra* MEYRICK, 1886 and *Trachycera* RAGONOT, 1893 with *Acrobasis* ZELLER, 1839 – a move that has proved popular with most workers. Freshly emerged examples of most *Acrobasis* species are easily identified, but worn examples of some species may prove difficult. This is especially the case with females, in which the genitalia provide little in the way of repeatable and reliable differences; unfortunately, many of the suggested differences can be created in a single specimen by varying the pressure on the glass cover slip of the microscope slide. Males of some species have a "thorn" of scales on the dorsal surface of the basal antennal segment (Table 3), but this is absent from others; it is rarely lost, even in damaged specimens, and can be an invaluable starting point in the identification process (and is a confirmatory factor in separating *A. fallouella* (RAGONOT, 1871) from *A. glaucella* STAUDINGER, 1859 which are otherwise nearly identical in many examples).

Antennal "thorn" in species of *Acrobasis*		
Present	**Absent**	**Distribution**
centunculella	*advenella*	*Present in Bulgaria*
consociella	*dulcella*	
fallouella	*legatea*	
obliqua	*marmorea*	
obtusella	*sodalella*	
repandana	*suavella*	
tumidana		
bithynella	*getuliella*	*Not yet found in Bulgaria*
porphyrella	*glaucella*	
romanella		

Table 3: Presence or absence of a "thorn" of scales at the antennal base in European males of *Acrobasis* Zeller, 1839.

Thirteen species are listed reliably for Bulgaria; the five remaining European species are not realistically expected here.

5853 ***Acrobasis tumidana* ([Denis & Schiffermüller], 1775)**
= *Conobathra repandana* ([Denis & Schiffermüller], 1775) nec (Fabricius, 1798)

59 records: [1903] – 2014

This is by far the most widespread and abundant of the *Acrobasis* species in Bulgaria and is to be expected in almost every locality where there are deciduous oak trees (*Quercus* spp.), on which the larvae feed. It was first noted in the country from the Vitosha Mountains near Sofia by Drenowski (Rebel, 1903) and shortly afterwards (Buresch, 1908) reported it in the Sofia district with "One from Dragalevstsi in July 1905". It has been recorded constantly since then, such as from Popsko village, 2.VI.1969, 1♂ (Tuleshkov & Slivov, 1975; Beshkov & Langourov, 2004) and Bunkera, Vitosha Mountain, 27.VI.1978 and Zemen Gorge, Konyavo (now Konyavska) Mountain, 19.VIII.1978 & 10.VI.1981 (Ganev, 1984). I have recorded it regularly between 2002 and 2015 in sites across the country. Adults are on the wing more or less continuously from early June (2nd) to late September (30th). There is a barely discernible gap from 28 June to 17 July, in which there are no records; this might be a division between generations or it may be a function of under-recording. Overall, *A. tumidana* appears likely to be more or less continuously brooded from June to September, but with a clear peak of adults in August.

5854 ***Acrobasis repandana* (Fabricius, 1798)**
nec *repandana* ([Denis & Schiffermüller], 1775)
= *Conobathra tumidella* (Zincken, 1818)

11 records: 1964 – 2015

This species appears to have similar general habitat requirements to *A. tumidana*, as well as identical larval requirements, and so it is a surprise to discover that it is scarce in comparison. The overall distribution *pattern* in Bulgaria will, with adequate recording, probably be not dissimilar to that of the preceding species, but it is immediately apparent from the map that this species is seemingly absent from the lists for many sites where *A. tumidana* is recorded. Personal experience also indicates that it appears in light traps in far lower number. The spread of records is from the end of the first week of June (7th) to mid September (19th) and so it appears to fly at the same time as *A. tumidana*; this implies that if it is present at a site it ought to be caught in the same traps as that species – in other words, under-recording may not be a consideration. This is based upon an assumption that it comes to light as readily as the other species; personal data from Britain certainly supports the notion that it does.

5856 ***Acrobasis advenella* (Zincken, 1818)**
= *Trachycera advenella* (Zincken, 1818)
= *Aurana advenella* (Zincken) sensu Ganev, 1984

42 records: 1927 – 2014

This is another very widespread and common species in Bulgaria, no doubt owing at least some of its success to the ability of the larvae to feed on a range of rosaceous bushes. However, there is no significant foodplant data from Bulgaria, and larval preferences here are unknown. In Britain, my experience is that *Crataegus monogyna* is the favoured pabulum, but

Sorbus, *Pyrracantha* and others are also used. In reporting an example seen by DAVEY at Madzharovo, 11.VIII.2003, BESHKOV & LANGOUROV (2004) appear to have overlooked the synonymy in GANEV (1984) and incorrectly cited *A. advenella* as a new species for Bulgaria. In fact the first record, as far as I have been able to discover, was from Tarnovo, 29.VII.1927, leg. TULESHKOV, based on a male in NMNHS, seen by me. The first published report seems to be of male examples in the Iskar Gorge at Romcha, 19.IX.1964 and Lakatnik, ix.1964 given in SLIVOV (1970).

5857 ***Acrobasis suavella* (ZINCKEN, 1818)**
= *Trachycera suavella* (ZINCKEN, 1818)

8 records: 1935 – 2011

In spite of the apparently wide availability of the larval foodplant, *A. suavella* seems to be a seldom recorded species in Bulgaria. Reliable records are mostly from the south, but there are also localities in the eastern area including both the earliest record (Varna, 7.VI.1935, leg. N. KARNOSCHITZKY) and the most recent one (Dobrudzha Kraishte, near the Romanian border, 25.VIII.2011, leg. BESHKOV). It was also reported from Nessebar by SOFFNER (1967), but unfortunately the information does not include a date so that the record might have been contemporaneous or it could even have been, for example, from the 1860s when HABERHAUER was active in that area. Records in the present millennium are from the marsh near the quarry at Novo Konomladi, in the West Rhodopes at Brestovitsa and in the Eastern Rhodopes near the iron bridge at Dolna Cherkoviste, all collected by BESHKOV and passed to me for identification. Dated records are from early June (7th) to late August (25th), but there are not enough data to know whether it is continuously brooded or if there is more than one generation.

The larvae feed on *Prunus spinosa* in other countries and doubtless do the same in Bulgaria.

5858 ***Acrobasis legatea* (HAWORTH, 1811)**
= *Tinea legatella* HÜBNER, 1796 nec [DENIS & SCHIFFERMÜLLER], 1775
= *legatalis* (HÜBNER, 1825) sensu SLAMKA, 1997

13 records: 1929 – 2015

The earliest report is from Slavyanka (as "Alibotush") whence a male was collected on 21.VI.1929 by TULESHKOV (specimen in NMNHS). Although there are relatively few reliable records of *A. legatea*, those which we do have are widely scattered and as the distribution map shows affect the whole of the country from the western area towards Serbia to the coastal belt in the east, from sea level (Varna) to 1560 m. (Slavyanka), wherever the larval foodplant is available. It is likely that this and other members of the genus might prove to be rather more widespread if larvae were sought as an alternative to light trapping. The Bulgarian adults fly from mid June (18th) to early September (8th) with insufficient gaps between the records to indicate separate broods.

I have no experience of rearing this species, but LERAUT (2014) states that the larva feeds on Buckthorn (*Rhamnus catharticus*).

5859 ***Acrobasis dulcella* (ZELLER, 1848)**

5 records: 1863 – 2011

With only five records listed in the database, all of which are plotted in the distribution map, this is either a rather rare moth or else one that we have not yet learned how to find. There is a Bulgarian specimen under this species name in the Rome Museum (ZILLI, pers. comm.) for which I do not have the collecting data, but it is unlikely that it predates our "official" first report from Varna in 1863 (LEDERER, 1863), repeated in REBEL (1903). I have also seen a male from Slavyanka (as "Alibotush"), 21.VI.1929, leg. TULESHKOV, in coll. NMNHS. It was reported from Nessebar in July, but with no year stated (SOFFNER, 1967) and most recently from the Stara Planina at Kaloter, near Panitsite, 31.VII.2011, leg. BESHKOV.

The larvae feed on *Prunus spinosa* and domestic plum *Prunus domestica* (SLAMKA, 2010); it seems possible that other species of *Prunus* might also be used.

5860 ***Acrobasis marmorea* (HAWORTH, 1811)**

12 records: 1929 – 2011

Published records of *A. marmorea* are from Balchik, ♂ 27.VI.1930 (POPESCU-GORJ, 1964), from The Iskar Gorge at Lakatnik, 21.VII.1964, "1♂ from shrubs above the fisher's house – new to the Bulgarian fauna" and at Mezdra, 1♀ at light on 21.VI.1965 (SLIVOV, 1970) and from the Rhodopes Mountains at Devin, 2♂♂, 25.VI.1969, Velingrad, 1♂, 4.VII.1962 and 1♂, 16.VII.1963, leg. H. LUKOV (TULESHKOV & SLIVOV, 1975). Clearly, SLIVOV's claim to the first national

record was incorrect; the first was in fact even before that of POPESCU-GORJ and is of a single female taken at Belasitsa Mountains on 4.VI.1929, with a second female on 6.VI.1929, both of which were overlooked in the collections of NMNHS until located by me during 2014. Adults have been recorded more or less continuously from late May (23rd) to mid August (13th) and occur from sea level to at least 885 m. altitude, but with so few records there is doubtless much more to learn.

The larvae feed on *Prunus spinosa*, *Crataegus* and *Sorbus* (SLAMKA, 2010); it seems possible that other species of rosaceous bushes might also be used.

5864 ***Acrobasis obliqua* (ZELLER, 1847)**

4 records: 1931 – 2010

SOFFNER (1967) provides the earliest Bulgarian record, from Nessebar, "July" and there is a male in the collections of NMNHS labelled "Strandha" [presumably Strandzha?], 16.V.1931, leg. TULESHKOV. There are also two recent records: Arda River area at Madzharovo, 1♂, 14.IX.2009, leg. ZLATKOV and from the volcanic hill at Kozhuh, 8.V.2010, 1♂, leg. ZLATKOV, SIVILOV & HRISTOV. Examples from elsewhere in the Balkans (Albania, Greece, Turkey and the former Yugoslavia) belong to ssp. *glycerella* STAUDINGER (1859) where the nominate subspecies is absent (KARSHOLT & RAZOWSKI, 1996); this is likely to be the case in Bulgaria, but with only four poor quality specimens it is impractical to pass an opinion.

The larvae feed on *Cistus* species, with *Cistus albidus*, *C. monspeliensis* and *C. salviaefolius* listed (SLAMKA, 2010). This is perhaps a limiting factor in the Bulgarian distribution.

5867 ***Acrobasis centunculella* (MANN, 1859)**

5 records: 1933 – 2013

This is a fairly distinctive member of the genus and may therefore be less prone to under-recording; perhaps, therefore, it is a genuine rarity here. The five records are from Sandanski, 10-12.VII.1933 and from the Pirin Mountains above Lilianovo, 900 m., 22-27.VII.1933, (both in REISSER & ZÜLLICH, 1934), the Balchik area of the Black Sea Coast, 1♂, 14.VIII.2009, leg. ZLATKOV, from the Eastern Rhodopes at Egrek, near Krumovgrad, 1♀, 2.V.2013, leg. BESHKOV and near Paril village in the Slavyanka Mountains, 4♂♂, 17.VI.2013, leg. BESHKOV. Apart from the record by REISSER all material has been seen by me.

The larvae feed on Cistaceae, including *Helianthemum* and *Fumana* (SLAMKA, 2010).

5868 ***Acrobasis sodalella* ZELLER, 1848**
= *Acrobasis solaliella* ZELLER misspelling

10 records: 1933 – 2011

Four published records include the first, from the Pirin Mountains above Lilianovo, 900 m., 22-27.VII.1933, leg. REISSER (REISSER & ZÜLLICH, 1934). The next is thirty years later from Velingrad, 1♂, 17.VIII.1962, leg. LUKOV (TULESHKOV & SLIVOV, 1975 – as "*solaliella* Z."); the same authors also give Kardzhali, 1♀, 23.VII.1968. Slivov (1970) adds Lakatnik, in the Iskar Gorge, 1♀, 17.VII.1965. Field work during 2011 produced the moth in the Slavyanka Mountains at Livade on 15.VI.2010, in the Western Rhodopes at Brestovitsa, in the Strandzha Mountains at Popovi Skali between Velika and Fazanovo and in the north towards the Romanian border near Ruse. Adults have been noted from mid June (15th) to the end of August (30th), but there are large gaps resulting from the paucity of records and so it is not possible to detect how many adult generations there are. The distribution map in LERAUT (2014) shows that it occurs practically throughout mainland Europe from the Atlantic to the Black Sea and beyond, extending north to Denmark and the southern tip of Fennoscandia (but not the British Isles).

The larvae feed on deciduous species of *Quercus* (SLAMKA, 2010) and it is a mystery why this species appears to be scarce in Bulgaria.

5869 ***Acrobasis consociella* (HÜBNER, 1813)**

13 records: 1930 – 2015

As with so many other phycitines, an overlooked specimen in NMNHS provides the first record for Bulgaria, from the Struma Valley at Kresna, 1♂, 17.VII.1930, leg. TULESHKOV. The next known was from the Iskar Gorge at Cherepish, 1♂ "from the shrubs", 25.VIII.1965 (SLIVOV, 1970) and Kresna features again, with 1♂ on 6.VI.1988, leg. SZABÓKY. The other records are from the Eastern Rhodopes at Komuniga, near Zhenda, the Eastern Stara Planina at Dropla and from the

Silistra region between Alfatar and Vasil Levsky, all in 2011, and then at Zheravna, 1♂ on 16.VIII.2012. Records of adults are from early June (6th), mid July (17th) and then in August (11th to 27th).

The larvae feed on deciduous species of *Quercus* (Slamka, 2010).

[5870 *Acrobasis glaucella* Staudinger, 1859

Bulgarian reports of *A. glaucella* are referable to *A. fallouella* (Ragonot, 1871). This is likely to be the case in other Balkan countries and *A. glaucella* is possibly restricted to Western Europe. Further investigation is required.]

5870a *Acrobasis fallouella* (Ragonot, 1871)

17 records: 1933 – 2014

In the past, *A. fallouella* has been confused with *A. glaucella*. Adult females are often very similar, with a significant overlap of "forms", but males of *A. fallouella* possess a prominent "thorn" on the antennal scape – a character that is lacking in *A. glaucella*. Apart from possible confusion of females, all Bulgarian material examined, including museum specimens, has proved to be referable to *A. fallouella*. *A. fallouella* is known primarily throughout the southern area and coastal region of Bulgaria. The first was at Lilianovo, 900 m., 22-27.VII.1933 (Reisser & Züllich, 1934). The next was from the east in the coastal region whence the third available record was made, at Varna, 30.VII.1933, leg. Karnozitzki. There is no reason to suppose that it is not more widespread and it can be expected in most places where oak trees grow. Although localities are widely-spaced, wherever it has been found, the moth appears to be common. Adults have been caught from sea level up to 1900 m. at Orelyak (just below the radio mast), 8.VIII.2013, leg. Plant – a rather surprising but correct location given the alleged association of the moth with *Quercus*. There are two records from the beginning of May (3rd) then a gap, after which all reports are from early June (6th) to late August (23rd).

The larvae of both species feed on *Quercus*.

5871 *Acrobasis obtusella* (Hübner, 1796)

9 records: 1930 – 2014

Balchik, ♂ 27.VI.1930, as "f. *ottomana* Car." (Popescu-Gorj, 1964) provides the first record for Bulgaria and there is a specimen labelled "Genische Ada Varna" in NMNHS and collected by Tuleshkov on 18.VI.[1931] – year inferred from other factors. Other older records are from the Iskar Gorge at Lakatnik, 1♂, 12.VI.1966 (Slivov, 1970) and Kresna railway station, 11. vi.1986, leg. Szabóky. The Kresna area is also responsible for the most recent record, 1♀ 13.VI.2014, leg. Beshkov. Other modern reports are from the Eastern Rhodopes, between Zvanarka & Pobeda, 10.VI.2011, leg. Beshkov and Ada Tepe Hill near Krumovgrad, 21.VII.2011, leg. Beshkov and again from the Black Sea coast at the Baltata Forest, near Albena, 1♂, 22.VII.2011, leg. Zlatkov & Sivilov. All these records are between early June (10th) and late July (22nd).

The larvae feed on foliage of Rosaceae (*Prunus, Pyrus, Malus*), and also on *Betula* (Slamka, 2010). Sinev (1986) regards it as a pest species, but this seems unlikely to be the case in Bulgaria.

5875 *Apomyelois ceratoniae* (Zeller, 1839) Locust Bean Moth

1 record: 2005 – 2005

Although listed on the Fauna Europaea web site for most of Europe, there is only a single report of this species from Bulgaria, at Kozhuh, near Petrich, 1♀, 30.IX.2005, leg. Zlatkov and identified by me following genitalia dissection. There is another Bulgarian specimen under this species name in the Rome Museum (Zilli, pers. comm.), but I have not yet examined this.

The larvae are widely reported to feed on the seeds and pods of a range of plants, including *Punica granatum*, *Citrus* fruit, *Pistacia vera*, *Juglans regia*, *Prunus dulcis*, *Macadamia integrifolia*, *Acacia farnesiana*, *Caesalpinia sappan*, *Cassia bicapsularis*, *Ricinus*, *Erythrina monosperma*, *Haematoxylum campechianum*, *Prosopis juliflora*, *Samanea saman*, *Phoenix dactylifera* and *Ceratonia siliqua*. In places, it is regarded as a serious agricultural pest

[…. *Mussidia nigrivenella* Ragonot, 1888
Palm (2012) illustrates an example of a moth from Sofia, 5.IX.1956, leg. Vihodcevsky, in coll. ZMUC [det. Goater, male genitalia slide number 384], stated to be this species. Ole Karsholt kindly sent me the specimen to examine; it is an exceptionally large (wingspan 25 mm) example of *Ephestia kuehniella* Zeller, 1879. There are no genuine records of *Mussidia nigrivenella* from Bulgaria].

5878 ***Glyptoteles leucacrinella* Zeller, 1848**

3 records: 2009 – 2012

My own capture of 2♂ on the coastal cliff ledges in the Balchik, 14.VIII.2009, in the company of Beshkov & Zlatkov, was the first Bulgarian record of this species, the identification of which was confirmed by examination of genitalia. Subsequently, further examples were captured at light a few kilometres east of Kavarna, 1♂ 26.VIII.2011 & 1♂1♀ 27.VIII.2011, leg. B. S. Larsen. There appear to be no other records.

The larvae are detritivorous, especially in marshy areas (Leraut, 2014).

5880 ***Episcythrastis tetricella* ([Denis & Schiffermüller], 1775)**
= *Myelopsis tetricella* ([Denis & Schiffermüller], 1775)

32 records: 1863 – 2013

Varna (Lederer, 1863 repeated in Rebel, 1903) is the source of the earliest record of this widespread and common Bulgarian moth. The distribution map shows records in the north-west and north-east in particular, but this may reflect little more than light-trapping in these areas during the relatively early flight season – adults are on the wing in from mid April (15th) to mid May (18th). It is probable that an increased early season sampling effort in other areas will even out the spread of map dots. Interestingly, there are also records from the autumn period at Paril (Slavyanka), 7.VIII.2013, leg. C. W. Plant and on the coast at Obrochishte, 5.IX.2009, leg. B. S. Larsen. Elsewhere in Europe, perceived wisdom (e.g., Leraut, 2014) is that the moth flies from May to July, so that an early August record is not exceptional. The latest record, from early September is unexpected, but correct.

The larvae feed on *Salix* species.

5881 ***Episcythrastis tabidella* (Mann, 1864)**

22 records: 1930 – 1915

Although fresh specimens can be recognised with some confidence, the few features of wing pattern abrade rapidly so that most specimens appear as relatively nondescript grey moths. They are very like some species of *Ephestia* Guenée, but the male genitalia are distinctive. *E. tabidella* has a southern distribution in Europe in southern Iberia, the Mediterranean islands and the southern Balkans. All Bulgarian records are from the southern zone, between 400 m. and 1000 m. altitude, where the moth is widespread and fairly numerous. Adults are on the wing in this area more or less continuously from early July (7th) to mid August (12th), with "outliers" on 5 June and 14 September.

The larvae feed on *Euphorbia spinosa* (Leraut, 2014).

5886 ***Eurhodope monogrammos* (Zeller, 1867)**
= *Myelois monogrammos* Zeller, 1867

2 records: 1929 – 1932

Karsholt & Razowski (1996) list this species in Europe for Albania and Bulgaria only. I am not aware of the details of the Albanian record, but in Bulgaria we have only Balchik, ♂♂ 12.VII.1929 & 4.VIII.1932 (Popescu-Gorj, 1964). Zeller's original description includes the comment that "Herr Lederer also met with this insect in Amasia: 'twelve miles from Amasia, in a dry place, not very scarce in June. I only, however, caught one, as I thought it was *argyrogrammos*.' – Lederer, in litt.". Amasia is, of course, modern-day Amasya, in European Turkey in the mountains near the Black Sea. The type locality is in Jordan.

The larval foodplant is apparently unknown.

5888 ***Eurhodope rosella* (Scopoli, 1793)**

54 records: [1903] – 2015

This distinctive and rather attractive small moth is widespread and usually abundant in Bulgaria. It is likely to be found in open, flower-rich grassland habitats in most of the country. The earliest reports are from Sliven (Rebel, 1903, repeated in Buresch, 1908, who also adds "Vitosha, above Kniajevo, in July". Mid May (11th) to mid September (14th) with no discernible breaks that might indicate a separation of generations. More recent reports affect most areas of the country, except that high-altitude sites do not feature in the distribution map.

The larvae feed on *Scabiosa columbaria*.

5891 ***Eurhodope cirrigerella* (ZINCKEN, 1818)**
= *Kyra cirrigerella* (ZINCKEN, 1818)
= *Myelois cirrigerella* (ZINCKEN, 1818)

4 records: 1933 – 2013

The earliest report of from above Lilianovo, 900 m., 22-27.VII.1933, leg. REISSER (REISSER & ZÜLLICH, 1934). Two more are from Bunkera, in the Vitosha Mountain, 19.VII.1980 & 20.VI.1981 (GANEV, 1984) and the last is from Orelyak, 1♂, 8.VIII. 2013, leg. KARSHOLT. It is likely to be an under-recorded species, as it is rather poorly attracted to light and is best looked for by day on flowers in upland meadows.

The larvae feed on the flowers of *Knautia* and *Scabiosa* species.

Genus *Myelois* HÜBNER [1825] 1816
The genus was most recently reviewed, for the Palaearctic Region, by ROESLER (1988), who provides drawings of the male genitalia of *M. circumvoluta* FOURCROY, 1785 and both male and female genitalia of *M. multiforella* RAGONOT, 1887.

5896 ***Myelois multiforella* RAGONOT, 1893**
= *multiflorella* RAGONOT, 1887, *ss* KARSHOLT & RAZOWSKI, 1996. Misspelling and incorrect date.
= *luteocinctella* CARADJA, 1930

8 records: 1929 – 2010

Balchik, Culac Mare, ♂ lectotype 9.VII.1929 (POPESCU-GORJ, 1930). This is repeated in POPESCU-GORJ (1964) as M. *cribratella* Z. f. *luteocinctella* Car., in which he also lists ♂♂ 29.VI.1929, 5.VII.1929, 6.VII.1930 & 7.VII.1931, ♀♀ 25.VI.1929 & 6.VII.1930. Other than these, the only record is Rosen, near Krasen (near the Romanian border in Dobrogea), 1♂, 23.VII.2010, leg. BESHKOV, genitalia examined by myself. Bulgaria and Romania form the western limit of the distribution of this species.

The larval foodplant is unknown.

5898 ***Myelois circumvoluta* (FOURCROY, 1785)**
= *cribrella* (HÜBNER, 1796) misidentification

36 records: 1863 – 2015

M. circumvoluta is a widespread species across most of Bulgaria from the Black Sea coastal zone, the southern mountains, the Stara Planina and the west and is probably simply overlooked in the north towards the border with Romania. The earliest record is from Varna (LEDERER, 1863; REBEL, 1903). REBEL (1903) also adds the Sofia area and Vitosha; and five years later in the Sofia area it was "frequent everywhere, in May and June" (BURESCH, 1908). Records of adults fall into two flight periods, from early May (8th) to late June (20th) and then mid July (16th) to late August (22nd).

The caterpillars feed internally in the stems of *Carduus* and *Cirsium* species, but may also use *Arctium* (SLAMKA, 2010).

***Pterothrixidia rufella* (DUPONCHEL, 1836) / *Pterothrixidia squalidella* (EVERSMANN, 1842)**

LERAUT (2014) raised *Pterothrixidia squalidella* from synonymy on the basis of supposed consistency in better definition of cross lines on the forewings and "genitalia different". *P. squalidella* is said to replace *P. rufella* from Central Europe to Turkey and Iran whilst *P. rufella* occurs in central south Europe, west to Iberia and North Africa. However, the two taxa overlap in Hungary and the former Republic of Yugoslavia. This is not a "new" species, and so no formal description was presented by LERAUT; this is rather unfortunate because LERAUT also notes that "uniformly light chestnut brown forms exist, however". His earlier text for *P. rufella* asserts "transverse lights quite indistinct". Regrettably, the differences in genitalia have to be inferred from the drawings because they are not described and therefore it is unclear which features may be important and which may be simple variation. EVERSMANN's original description did not include genital characters. The aedeagus of *P. squalidella* is shown in LERAUT (*op. cit.*) with one cornutus, that of *P. rufella* with two; perhaps we are to assume that this is the key difference? During 2015 I dissected a presumed *P. rufella rufella* male from Spain (Picos de Europa, 7.VII.2014, leg. TERESA FARINO, in coll. PLANT), in appearance rather similar to LERAUT's Plate 40, figure 6; this was found to have two cornuti, as expected. However, all the Bulgarian males that I have been able to dissect also have two cornuti, including one from Bezhanovo, near the Romanian border, on 5.V.2012, leg. BESHKOV, which is quite devoid of any cross lines and appears identical to LERAUT's illustration of *P. rufella rufella* (Pl. 40 Fig. 12). To date, I have not yet found any examples with a single cornutus, although some material mentioned in the list below is not currently available. Within the genital capsule of the male, the projections from the valva have acute tips in the drawing of *P. squalidella* (LERAUT's text figure 119a) those of *rufella* in figure 119b are shown acute on one side and rounded on the other; I can make my specimens change shape in this area by varying pressure on the glass cover slip when making a microscope slide! I have observed that other characters, such as the form

of the gnathos, of the anellus and the curvature of the projections on the valva also can be varied by alteration of pressure on the glass cover slip of the microscope slide. My overwhelming conclusion is that if *P. squalidella* is a valid species it has not yet been found in Bulgaria, and all Bulgarian material currently known is here assigned to *P. rufella*. Consequently, all data are combined into the single distribution map, but I nevertheless separate the records into three groups, as below, in case this proves useful at a later date.

5904 *Pterothrixidia rufella* (DUPONCHEL, 1836)

= *contectella* ZELLER, 1848
= *impurella* (DUPONCHEL, 1836)
= *caucasiella* (RAGONOT, 1888)]
? = *squalidella* (EVERSMANN, 1842)

40 records: [1903] – 2014

Males with two cornuti in aedeagus
Skrino River, 430 m., 1♂, 24.V.2002 (PLANT et al., 2003); near Kalimantsi, 1♂, 12.V.2010, leg. PLANT, BEAUMONT & BENEDEK, in coll. PLANT; Bezhanovo, near the Romanian border at Durankulak, 1♂, 5.V.2012, leg. BESHKOV; Slavyanka at 1860 m., 1♂, 18.VI.2013, leg. BESHKOV; Kongur (summit), 1♂, 27.VIII.2014, leg. BESHKOV; Bezhanovo, 1♂, 17.VI.2014, leg. BESHKOV; Pirin Mountains at Vlahi village, 1♂, 8.V.2014, leg. S. BESHKOV.
Males not dissected by me
The earliest report is that from Rila, leg. HABERHAUER, given by REBEL (1903), who himself recorded *P. rufella* as "not rare" in Sliven, mainly in Batmisch. He added that the appearance of the species varies considerably and indicated that he regarded the separation of this species from *P. impurella* DUPONCHEL, 1836, which was also noted from Sliven, as "doubtful". DRENOWSKI (1925) records *P. rufella* between 700 and 1000 m. in the Stara Planina and Rila Mountains and *P. impurella* at 100 m. in the Stara Planina and Rhodopes Mountains, the latter also mentioned by TULESHKOV & SLIVOV (1975). Other records are: Balchik, ♂♂ 19.VII.1928, 22.VI.1930, 20.VII.1930 & 8.VII.1931, ♀♀ 22.VI.1930 & 29.VII.1930 (POPESCU-GORJ, 1964); Nessebar, July and August, as ssp. *crudella* (SOFFNER, 1967); Slavyanka (as Alibotush), as *P. caucasiella*, leg. DRENOWSKI, undated in coll. NMNHS; Struma valley, Kresna railway station, 6. vi.1986 & 11-12. vi.1986, leg & coll. SZABÓKY; near the bridge on the Arda River near Madzharovo, 17 – 23.V.2004, 1♂, genitalia checked, leg. BESHKOV & BECK (BESHKOV & LANGOUROV, 2004); Melnik-Rozen 8-9. vi.1986, leg & coll. SZABÓKY; Kresna Gorge, 10.V.2010, PLANT & BEAUMONT, in coll. BEAUMONT.
Females
Balchik area, coastal cliff ledges with ruderal flora and scrub, 14.VIII.2009, leg. PLANT, BESHKOV & ZLATKOV, in coll. PLANT; Kraishte (village), Dobrogea, 1♀, 25.VIII.2011, leg. BESHKOV; Kresna, near railway station, 1♀, 4.VIII.2013, leg. PLANT.

The larva is associated with *Euphorbia* species (Leraut, 2014).

[5905 *Pterothrixidia impurella* (DUPONCHEL, 1836)

Listed as a separate species by KARSHOLT & RAZOWSKI (1996), but here treated as a synonym of *P. rufella* (DUPONCHEL, 1836) in accordance with LERAUT, 2005: 21).

[5907 *Pterothrixidia caucasiella* (RAGONOT, 1888)]

Listed as a separate species by KARSHOLT & RAZOWSKI (1996), but here treated as a synonym of *P. rufella* (DUPONCHEL, 1836) in accordance with LERAUT, 2005: 22).]

5910 *Bradyrrhoa gilveolella* (TREITSCHKE, 1832)

49 records: 1863 – 2014

This is an eastern species, the range of which extends as far as Kyrgyzstan and which reaches its western limit in the southern Balkans, although it is also present in Sicily. LERAUT (2014) states that *B. gilveolella* is a species of "mid-mountain environments" and many of the Bulgarian records support that view. However, there are records from near sea level at Varna (REBEL, 1903; DRENOWSKI 1920) and Nessebar (SOFFNER 1967) which rather contradict that concept. I have not seen voucher specimens for these records, but I have seen 1♂ Varna, 25.VI.1935, leg. KARNOZITZKI in coll. NMNHS and caught it myself at Pobiti Kamani, 1♂, 12.VIII.2009 and in an *Alnus*-dominated woodland at Aksakovo, 1♀, 18.VIII.2009. I have also seen specimens collected by ZLATKOV at Durankulak, near the Romanian border, 3♂, 9.IX.2009 and at Cape Kaliakra, 1♂, 23.VIII.2014. In the expected upland habitat, the record goes back to 1863 near Sliven in the Stara Planina (LEDERER 1863 REBEL 1903) and in the Pirin Mountains (REBEL 1903, DRENOWSKI 1920). Modern reports are from the Ossogovo,

Pirin, Slavyanka and Rhodopes mountain ranges. Bulgarian records are from late May (23rd) to late September (21st). Within this period the records are almost continuous, but there are short gaps with no reports from 13 – 20 June (9 days) and then 2 – 17 July (16 days), which may be significant or simply reflect a lack of adequate recording.

The larvae feed on *Chondrilla* including *C. juncea* (LERAUT, 2014). Larval development and pupation take place beneath the soil surface within a silk feeding tube, covered with detritus, attached to a root of the host plant.

5913 ***Bradyrrhoa confiniella* ZELLER, 1848**
= *Megasis nubigerella* RAGONOT, 1887

3 records: [1901] – [1901]

STAUDINGER & REBEL (1901) refer to this species from Varna. REBEL (1903) states that RAGONOT mentioned a different specimen from that represented in STAUDINGER's collection, but also from Varna. ROESLER's (1993) reference to this species from Varna must surely relate to one or both of these; he also records another example from "Precolnica" [= Prekolnitsa], but without a date. The wide gap between Varna on the eastern coastline and Prekolnitsa in the mountains adjacent to the Macedonian border in the west seems strange. There is also a Bulgarian specimen under this species label in the Rome Museum (ZILLI, pers. comm.), but I have not yet examined this. *B. confiniella* occurs in the eastern Mediterranean area of Europe and extends eastwards through Crimea to the Middle East.

The larval foodplant is, apparently, unknown.

5914 ***Bradyrrhoa trapezella trapezella* DUPONCHEL, 1836**
= *semiella* STAUDINGER, 1879
= *senilella* misspelling
= *trapeziella* misspelling

5 records: [1903] – 2013

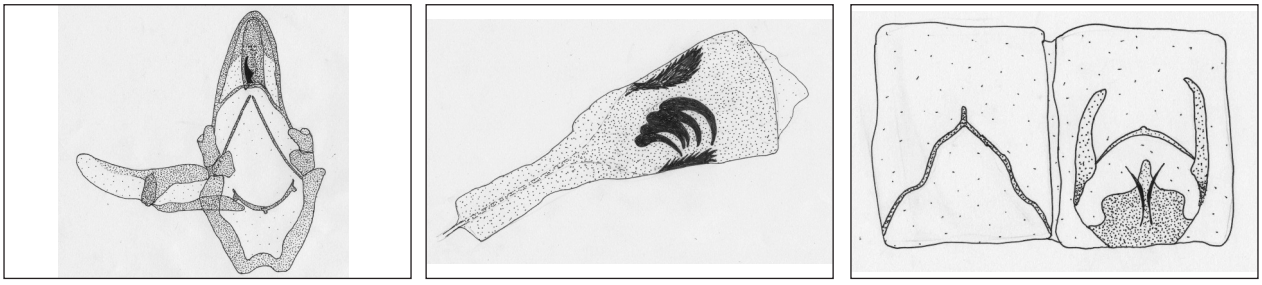
In Europe, *B. trapezella* occurs in Italy, the Mediterranean islands and the Balkans, though in the last area there are records only from Bosnia-Herzegovina and Bulgaria. There are four published historical records for Bulgaria, from Kresna and Sliven (REBEL, 1903; REBEL & ZERNY, 1931); Kresna, August, leg. LUKOV, det. Klimesch (SOFFNER, 1967) and Slavyanka (KLIMESCH, 1968; ROESLER, 1993). The only recent record is of 2 ♀ at Gradeshka Banya near Kresna, 16.VI.2013, leg. BESHKOV.

The larval host plant is known only from the Canary Islands, where *Andryala pinnatifida* is utilised (LERAUT, 2014).

5721 ***Bradyrrhoa imperialella* (RAGONOT, 1887) comb. nov.**
= *Phycita imperialella* (RAGONOT, 1887) sensu LERAUT, 2014
= *Sciota imperialella* (RAGONOT, 1887)
= *Nephopterix imperialella* RAGONOT, 1887

2 records: 2013 – 2013

The transfer by LERAUT (2014: 296), of RAGONOT's *imperialella* from *Sciota* HULST, 1888 into *Phycita* CURTIS, 1828 on the basis of unspecified characters of the "external morphology and its genitalia" is clearly erroneous. That it does not belong in *Phycita* is immediately apparent to any experienced technician upon dissection, since the characteristic heavy, jet black, extremely deciduous scales that adorn the posterior margin of sternite 8 in the male of *Phycita* species are quite absent. The general form of the aedeagus, in particular, is entirely contradictory to a position within *Phycita*; its "ice cream cone" shape demonstrates rather closer affinities with *Asartodes* RAGONOT, 1893. However, the overall character of the genital capsule (Fig. 13), as well as the appearance of the adult moth, is clearly aligned to *Bradyrrhoa* Zeller, 1848 to which genus it is now formally transferred.



a. Genital capsule b. Aedeagus (non-everted) c. Culcita

Fig. 13: Male genitalia of *Bradyrrhoa imperialella* (RAGONOT, 1887) comb. nov. Nova Lovcha, (Slavyanka Mountains), 7.VIII.2013, leg. B. ZLATKOV.

There are just two Bulgarian records of single moths. One was taken at the Granchar Chalet area of the Pirin Mountains on 6.VIII.2013, by O. KARSHOLT and another near Nova Lovcha in the Slavyanka Mountains, 1♂ 7.VIII.2013, leg. B. ZLATKOV. It is also known from the adjacent countries of Macedonia and Greece, although it is apparently encountered only very rarely. Nevertheless, it is almost certainly overlooked in the south and west of Bulgaria and probably also in Eastern Serbia.

The larval foodplant appears to be unknown.

5925 ***Asalebria florella florella* (MANN, 1862)**
= *Pristophorodes* AMSEL, 1963

13 records: 1981 – 2014

The records of this species are confined to the south-western mountainous area in Bulgaria between 200 and 1560 m. altitude, and in this region it is often common in light traps. There seems to be no logical reason why it should not be found elsewhere in other upland areas of the country, but so far it has not. Rather interestingly, the earliest Bulgarian record is fairly recent, from Kyustendil, 18.VI.1981 (GANEV, 1984; ROESLER, 1993); all other reports are from 2010 to 2013. The possibility exists that this species has spread into Bulgaria from Macedonia in the last forty years and that the general pattern of distribution is genuine. Adults have been recorded in flight from 4th to 18th June and then, after a gap, a single report on 19th July.

The larval foodplant is *Genista,* including *G. scorpius* (LERAUT, 2014

5759 ***Asalebria geminella* (EVERSMANN, 1844)**
= *Pempelia geminella* (EVERSMANN, 1844)

2 records: 1955 – 2011

This is a distinctive species that is unlikely to be overlooked and so it is supposed that it may be genuinely rare in Bulgaria. One female was found by me in the collections at NMNHS (Rila Mountains, Dolna Banya Village, 850 m., 27.VII.[19]55). It is pinned, but not set. It appears in reasonably good condition, but is badly affected by mould, and I have therefore been reluctant to relax and set it for the museum cabinet. Subsequently, a further example arrived at a light trap operated at the Hotel Baroto, Gotse Delchev, on 5.VII.2011, leg. N. GREATOREX-DAVIES.

The larval foodplant is unknown.

5930 ***Megasis rippertella rippertella* (ZELLER, 1839)**

14 records: [1903] – 2014

REBEL (1903) gives "Gog Dagh" as a locality. This is a German misspelling of the Turkish "gök dağ", meaning "blue mountain" and relates to the nature park area in the hills to the north of Sliven at around 1000 m. altitude (coincidentally, the type locality of *Phycita cryptica* PLANT & SLAMKA, 2016). He also states that HABERHAUER regularly found *M. rippertella* in the Sliven area, at Chatalka, Kutelka and Gabriel Peaks, but adds that he could not find it there himself. These localities lie within what is now the Sini Kamani Natural Park. The report is repeated by ROESLER (1993). More recent published records are from Slavyanka (as Alibotush), 19.VI.1929, leg. TULESHKOV, in coll. NMNHS; Slavyanka (as Alibotush) again (KLIMESCH, 1968); Trigrad, 25.VII.1968, 1♂ (TULESHKOV & SLIVOV, 1975); Zemen Gorge, Konyavo (now Konyavska) Mountain, 25.V.1980 & 14.VI.1980 (GANEV, 1984), the summit of Kutelka (eastern Stara Planina) in ROESLER (1993) and Polska Skakavitsa village, Zemen Mountain, 690 m., 23.V.2002 (PLANT et al., 2003). Unpublished modern records are from Polska Skakavitsa, 1♂, 22.V.2004, leg. ZLATKOV, Dragoman (Chepan), 1♂, 3.V.2009, leg. PLANT, BESHKOV & BEAUMONT and Smolichano, Ossogovo Mountains, 11.VIII.2014, leg. BESHKOV. Adults have been recorded from early May (3rd) to late July (25th), but an unexpected early report is from Chepan Mountain, where four examples were in the light trap samples from 30.III.2014, leg. BESHKOV.

LERAUT (2014) notes that the larval foodplant is *Onobrychis saxatilis*.

5933 ***Isauria dilucidella* (DUPONCHEL, 1836)**
= *Megasis dilucidella* DUPONCHEL, 1836
= *Megasis ilignella* ZELLER, 1839
= *illignella* Z., misspelling
= *Divona iligella* ZELLER, 1839
= *Adelosemia incredibilis* STAUDINGER, 1879

20 records: 1862 – 2013

REBEL (1903) mentions this species twice in the same paper under different names, both now regarded as synonyms. As "834. *Megasis illignella* Z. – *Rbl., Kat,* Nr. 525", he records a single example from Sliven, giving as his source LEDERER

(1863). Then, as "846. *Adelosemia incredibilis* Stgr. – Rbl., Kat, Nr. 692" he states "Sliven … one male, matching perfectly with examples from Asia Minor, was given to the Hofmuseum by HABERHAUER". KLIMESCH (1968) records *I. dilucidella* from Razgrad, 17.IV.1908 and later from Slavyanka (as Alibotush) without a year. On the Black Sea coast POPESCU-GORJ (1964) records this species (as *Divona iligella* Z.), ♀♀ on 6.VII.1930, 17.VII.1930 & 7.VII.1931 from the Balchik area. The first of these three almost certainly refers to the same record given in ROESLER (1993) for "Balcic, Romania", 6.VII.1930. The most recent published record SOFFNER (1967) also lists "Nessebar, June to September". Modern collections are from the south-west and south only, from 2003 to 2013 and indicate that the moth is widespread in this area, though usually scarce in light traps. Dated records are sparse but perhaps suggest two adult generations, from mid April (17th) to early May (3rd) then early July (7th) to mid August (13th).

The larvae feed on *Lotus corniculatus* and *Astragalus monspessulanus* (LERAUT, 2014) from within a silk tube.

5946 ***Asarta aethiopella*** **(DUPONCHEL, 1836)**

4 records: [1925] – 2009

DRENOWSKI (1925) records this species in the alpine zone, between 2700 and 2924 m., in the Rila and Pirin Mountains. More recently there are just three records. The first is from the Rila Monastery area, 1900m., 13.VI.1986, leg & coll. SZABÓKY; the second is also from the Rila Mountains, above Macedonia Chalet at 2200 m., 14.V.2008, leg. ZLATKOV. Most recently, B. ZLATKOV netted a female in flight at 11.00 hours on 14.VI.2009, above the Macedonia Chalet, at 2200 m. in the Rila Mountains. There is also a Bulgarian specimen under this species label in the Rome Museum (ZILLI, pers. comm.), but I have not yet examined this. The adults fly by day in the sunshine and in Europe as a whole they are active from June to August; our three dated records all fall at the middle of June.

The moth frequents alpine grassland where the larval foodplant, *Plantago alpina*, grows in plenty and it seems probable that is persists in low density at higher altitude in the Rila, and perhaps Pirin Mountains of the south-west. Daytime netting might prove productive, though it is perhaps unlikely to be present in other parts of the country.

5956 ***Epischidia fulvostrigella*** **(EVERSMANN, 1844)**
= *Phycis fulvostrigella* EVERSMANN, 1844
= *Pempelia fronticornella* HERRICH-SCHÄFFER, 1860

7 records: 1930 – 1982

Records from the Balchik area, ♂♂ 22.VII.1930, 30.VII.1930 & 4.VIII.1930, ♀♀ 28.VI.1930, 19.VII.1930 & 19.VIII.1932 , given in POPESCU-GORJ (1964) are almost certainly the records behind the [erroneous] listing of this species for Romania (e.g. KARSHOLT & RAZOWSKI, 1996; LERAUT, 2014). The only other Bulgarian reports are from the far south-west towards Petrich at the volcanic hill of Kozhuh, 13.VIII.1982 (GANEV, 1984).

The larval foodplant is unknown.

5962 ***Gymnancyla canella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

1 record: [1967] – [1967]

The only record for Bulgaria is the mention of "Nessebar, August" in SOFFNER (1967), which is repeated in ROESLER (1973). The larvae feed internally in the stems or shoots of *Salsola kali, Salicornia* and *Atriplex* and later externally from a silk web incorporating sand grains. Sand dunes or other sandy sites are favoured.

5964 ***Gymnancyla hornigii*** **(LEDERER, 1852)**
= *Spermatophthora hornigii* LEDERER, 1852
= *Spermatophora hornigii* misspelling

7 records: 1930 – 2014

This widespread European species is most prevalent in coastal areas where the larval foodplants, *Atriplex, Salsola* and *Salicornia* spp. are most abundant. It is no surprise, therefore, that most Bulgarian records are from the coastal area in the east, including the earliest at Balchik, 1♀ 28.VII.1930 (POPESCU-GORJ, 1964). "Nessebar, August" is listed by both SOFFNER (1967) and ROESLER (1973). GOATER found examples "rare at wine ropes and at rest" on the Silver Coast (Beila Bryag), between Balchik and Kavarna, 2 kilometres north-east of Tuzlata, 23.IX.1995, (BESHKOV & GOATER, 2000) and LARSEN captured it in the Kavarna area, 1♂, 22.VIII.2014. However, there are three inland records, all from the mountainous area of the south-west, from Ilindentsi, 3♂, 29.VIII.2009, leg. ZLATKOV & MUTACHIEV, Novo Hodzhovo Marsh, 1♂, 14.VI.2010, leg. ZLATKOV & SIVILOV and from scrubby, calcareous grassland above Stara Kresna Station, 21.IX.2010, a few, leg. PLANT & PICKLES.

5980 ***Eccopisa effractella* Zeller, 1848**

4 records: 1863 – 2014

Found by Lederer at Varna (Rebel, 1903), presumably the source of the non-specific reference to "Bulgaria" given in Roesler (1973). Lederer was actively collecting in Bulgaria in 1861 and 1862, and perhaps also at other periods. There are three recent records, from Arkutino, south of Burgas, on 26.VI.1981 and from the south-west at Kozhuh, 26.VI.1981, both listed by Ganev (1984) and one taken at Bolata on the coast, 2.IX.2014, by B. Larsen.

The larvae live among spun leaves of various deciduous trees.

5986 ***Assara terebrella* (Zincken, 1818)**
= *Hyphantidium terebrellum* Zincken, 1818

10 records: 1967 – 2015

Assara terebrella is apparently a rather localised species in the south-western upland zone. It had not been seen in Bulgaria since 1982 until large numbers of both sexes were attracted to lights run by myself in the company of Beshkov and Zlatkov at Trigrad on 12.VII.2015. Since then, it was found in a sample from light traps operated in the Pirin Mountains at Sharalia, 1♀ 8.VI.2014, leg. Beshkov. Previous records are from Borovets, (Soffner, 1967); Bunkera, Vitosha Mountain, 22.IX.1979, Panitchishte, Rila Mountains 17.VII.1980, Chepelare, Rhodopes Mountains, 1.VIII.1981, Kostenets, 4.VIII.1981, leg. Kiriakov, Izgrev, Rhodopes Mountains, 31.VII.1982, Rozen Pass, Rhodopes Mountains, 30.VII.1982 and Begovitsa, Pirin Mountains, 17.VIII.1982 (all given by Ganev, 1984). Adults have been recorded from mid July (12th) to mid August (17th) and then after a short gap again towards the end of September (22nd).

The larvae feed on developing seeds in the cones of *Picea abies* and are easily reared by collecting cones in winter. Leraut (2014) also cites *Pinus*, but I have no evidence of this. *A. terebrella* may be under-recorded, but if *Pinus* is used as a foodplant in Bulgaria the moth is likely to be rather more widespread than the present records indicate.

5988 ***Michaeliodes friesei* Roesler, 1969**

1 record: 2008 – 2008

There is a single Bulgarian record, from Popovi Skali, between Fazanov and Velika villages, Strandzha Mountains, 40 m., 26.V.2008, leg. Zlatkov & Beshkov. 1♂ gen. det. Plant. It was described fairly recently from material collected in Albania, and at present both its general ecology and the larval foodplant are unknown.

5993 ***Euzophera pinguis* (Haworth, 1811)**

14 records: 1935 – 2014

A female specimen dated 8.VIII.1935 but lacking a locality label is present amongst Bulgarian material in NMNHS collected by Tschorbadjiev seen by me in 2012. Other material in NMNHS is from the Vitosha Mountains, near Sofia, 11.VII.1947, 6.VII.1951 & 22.VII.1953 and there are published data for Nessebar, 17 – 31.VI.1963 leg. Soffner (Roesler, 1973) and Primorsko (Roesler, 1973). More recent records are of a male at Voinitsa, in the north-west, 10.IX.2011, leg. Beshkov and from the Black Sea coastal area from Durankulak in the north to the Ropotamo Reserve in the south. Adults are on the wing in Bulgaria from mid June (17th) to mid September (11th).

The larvae feed on *Fraxinus* within the bark.

5994 ***Euzophera bigella* (Zeller, 1848)**

6 records: 1959 – 2012

A female specimen dated 11.V.1959, but lacking a locality label, is present amongst Bulgarian material in NMNHS seen by me in 2012. There are reports without detail from Nessebar in Soffner (1967) and Roesler (1973) – these may or may not refer to this specimen. Roesler (1973) also gives Sistov, 1♂, leg. Soffner. Apart from these published data the moth has been found in both 2011 and 2012 between Alfatar and Vasil Levsky, 1♂, 27.VIII.2011, 2♂1♀, 23.VIII.2012, leg. Beshkov.

The larvae have been recorded in various western European countries feeding variously on the flesh or the seed within the fruits of *Cydonia oblonga*, *Malus domestica*, *Pyrus communis*, *Prunus domestica*, *Prunus armeniaca*, *Juglans regia* and *Punica granatum*.

[5996 *Euzophera nessebarella* Soffner, 1962

Listed by Soffner (1962) who refers to "Nessebar, 11 – 23.VII.1959 – Holotypus ♀ in coll. ZMB". This is repeated in Soffner, 1967. It is treated here as a synonym of *E. cinerosella* Zeller, 1839].

5997 *Euzophera cinerosella cinerosella* (Zeller, 1839)
= *Euzophera nessebarella* Soffner, 1962

8 records: [1903] – 2014

E. cinerosella is apparently a local and scarce species in Bulgaria, although it is possible that a greater survey effort in secondary (disturbed) habitats, especially in the coastal region, would produce more records. Existing reports from that region are from the Balchik area, 28.VI.1930, 18.VII.1930 & 20.VII.1930 (Popescu-Gorj, 1964), Nessebar, July (Soffner, 1967; Roesler, 1973) and Kavarna Beach, 1♂, 21.VIII.2014, leg. B. Larsen. Elsewhere, it was first found in Bulgaria as "a specimen captured by me at Sliven early June is an accurate match for examples taken in northern Germany" (Rebel, 1903) and more recently at light at Ilindentsi, 1♂, 27.V.2010, leg. Karsholt.

The larvae feed internally in the roots of *Artemisia absinthium*.

5999 *Euzophera costivittella* Ragonot, 1887

1 record: 2010 – 2010

A single male was taken at light at a site approximately 15 km north of Sandanski and 5 km east of Ilindentsi, on 27.V.2010 by Karsholt (genitalia det. Plant, in coll. ZMUC). As far as I can discover, this is the first record of this species in "Europe". Elsewhere, it is known from European Russia, Afghanistan and Iran (Roesler, 1973).

The larval foodplant is evidently unknown.

6003 *Euzophera pulchella* Ragonot, 1887

4 records: [1903] – 2013

Rebel (1903) comments that the type description by Ragonot refers only to "the Balkans", but he goes on to comment that he believed the type locality to be the Sliven area, on the basis that this was where Haberhauer, with whom Ragonot corresponded over the Phycitinae, had a house. The mention of "Bulgarien" in Roesler (1973) refers to the same data. Reisser & Züllich (1934) include this species in their list from Sandanski, 10-12.VII.1933 and more recently, there are just two records, also from the south-west, in the Struma valley, at Kresna railway station, 11-12. vi.1986, leg & coll. Szabóky and from Nova Lovcha, 800m, 7.VIII.2013, Karsholt leg. (female, gen. det. Plant).

6009 *Euzophera fuliginosella* Heinemann, 1865
= *Cymbalorissa fuliginosella* Heinemann, 1865

7 records: 1958 – 1981

Soffner (1967) mentions "Borovets, July". Slivov (1970) males and females from the Iskar Gorge, Mezdra, 21.VI.1965, 1♂2♀♀, "already reported from the same site (Slivov, 1967)" but the reference to "Slivov 1967" is obscure, because it is not cited in the list of "References" at the end of the 1970 paper. Two specimens in the collections at NMNHS pre-date both these records – both from Dalgopol, on 16.VIII.1958 and 20.VIII.1958, both leg. Zlatarsky. Since then, there is a specimen from Zemen Gorge, 9.VII.1980 and one from Kozhuh on 3.IX.1981, both listed by Ganev (1984), but there are none more recent. The sparse data available gives an adult flight period from early July (9th) to early September (3rd).

The larvae feed on *Betula* species (Leraut, 2014).

6011 *Euzopherodes charlottae* (Rebel, 1914)

2 records: [1973] – 2011

Historically, Roesler (1973) records "Bulgarien", but gives no detail. There is one recent report, from the Strandzha Mountains at the Bosna Dudenovo Hunting Reserve, 25.VII.2011, leg. Beshkov, det. Plant. It is said to be widespread in the Balkans, but it seems not in the Bulgarian part.

The larval foodplant is unknown.

6012 ***Euzopherodes vapidella* (Mann, 1857)**

2 records: [1973] – 2011

As with the preceding species, Roesler (1973) records "Bulgarien", but details are not provided. Only one subsequent record is known, from the Ropotamo Reserve, 1♂, 28.VII.2011, leg. Beshkov, gen. det. Plant. Leraut (2014) gives a flight period from April to October and his distribution map suggests that the species may be widespread in the Balkans, and so it might be overlooked in some other parts of Bulgaria.

The larvae feed on *Dioscorea alata* and *D. cayenensis* (Leraut, 2014) elsewhere in Europe but since this plant genus does not occur in Bulgaria a different foodplant must be in use if the moth is resident here.

6013 ***Euzopherodes lutisignella* (Mann, 1869)**

1 record: [1973] – [1973]

Roesler (1973) includes "Bulgarien: Vanak" in his list of places where this species is found. I have been unable to locate any additional information. *E. lutisignella* is stated to occur throughout the Balkans and eastwards to Central Asia.

The larval foodplant appears to be unknown.

6015 ***Nyctegretis lineana* (Scopoli, 1786)**
= *achatinella* (Hübner, 1824)

22 records: 1932 – 2012

The earliest Bulgarian report is from the Balchik area, ♂ 19.VIII.1932 (Popescu-Gorj, 1964); "Bulgarien" (Roesler, 1973) probably refers to the same record. In the collections of NMNHS are three males from 18, 19 & 20.VIII.1958, leg., Zlatarsky, seen by me and all of which originate from that same general area of the Black Sea Coast. There are few records from the west, such as that from the Iskar Gorge – "Common in open grassy habitats, crops of forage plants and on *Sambucus*. Flies from mid-June to the middle of August. Attracted by light" (Slivov, 1970). Unfortunately, this report lacks sufficient detail to permit addition to the distribution map, as does one from the south in the Rhodopes Mountains – "common in the belt of deciduous and mixed forest from June to the middle of August" (Tuleshkov & Slivov, 1975). The only recent report of *N. lineana* from the western half of the country is from the Novo Hodzhovo Marsh in the Struma Valley, 1♂ 14.VI.2010, leg. Zlatkov & Sivilov. There are rather more reports from the east, throughout the coastal zone, such as at Durankulak, where I collected examples on 17.VIII.2009, suggesting that moth is probably quite widespread and under-recorded in that area. Records are from early June (6th) to late August (27th), but there is a gap from 29.vi to 29.vii suggesting the possibility of at least two generations.

The larvae feed from August until the following June from a silk tube on various plants including *Artemisia, Gnaphalium, Ononis, Sedum* and also *Sarothamnus* (Slamka, 2010).

It is worth noting here that the rather similar-looking *Nyctegretis triangulella* Ragonot, 1901 (= *impossibilella* Roesler, 1969) which is found to the north in Romania and to the south in Greece has yet to be recorded in Bulgaria, but is surely overlooked; the larval foodplant appears to be unknown.

6016 ***Nyctegretis ruminella* La Harpe, 1860**

4 records: 1967 – 1982

N. ruminella is a rather poorly known species in Bulgaria. The first report is from "Nessebar, July, det. Amsel" (Soffner, 1967) which is probably the source of "*Nessebar*" (Roesler, 1973). Since then, it has only been reported from the south-west, at Kozhuh, 13.VIII.1982 & 27.IX.1982 and at Blagoevgrad, 15.IX.1980 (Ganev, 1984). *N. ruminella* is also present in Romania, to the north but so far, it has not been reported from elsewhere in the Balkans. The larval foodplant appears to be unknown.

Genus *Ancylosis* Zeller, 1839
Our present understanding of the genus includes *Staudingeria* Ragonot, 1887, synonymised by Leraut (2008). *Ancylosis* is a large genus. Leraut (2014) lists 42 species in Europe and the Mediterranean Basin and although some of these may be confined to North Africa, at least two or three additional species might easily occur in Bulgaria.

6027 ***Ancylosis cinnamomella* (DUPONCHEL, 1836)**

111 records: 1918 – 2015

By far the most widespread and abundant member of the genus at light traps in Bulgaria, *A. cinnamomella* is first mentioned in the literature for Bulgaria by POPESCU-GORJ (1964) who found it regularly in the Balchik area from 1929 to 1933, but specimens in NMNHS from Sliven, 8.VIII.1918, pre-date these reports. The "current" records in the distribution map indicate a species that is likely to be resident in most areas of the country, with current areas of record-deficiency most likely explained by under-recording. The adults are on the wing continuously from mid April (20th) to mid September (14th) with no apparent break, suggesting that they may be continuously-brooded. There is a single "outlier", on 23.X.2010.

The larvae feed from a silk spinning on *Sedum acre*, *Artemisia campestris* and *Globularia* species.

—— ***Ancylosis albidella* (RAGONOT, 1888) stat. rev. bona sp.**

1 record: 1956 – 1956

LERAUT (2014) regards *albidella* RAGONOT, 1888 as a synonym of *sareptalla* HERRICH-SCHÄFFER, 1861 and states that the two taxa are confused because of an "inaccuracy" in ROESLER's (1973) drawing of the genitalia (presumably of *sareptalla*), which shows an absence of a costal tooth. This statement is a little confusing, since although LERAUT says the missing tooth is costal, it is the ventral (sacculus) side of the valva which is intended. Unfortunately, ROESLER does not illustrate the female genitalia of *A. albidella*, but in his text he is clear that in the male the bulge beyond the end of the sacculus that is present in *A. albidella* is found nowhere else in *Ancylosis*. Regrettably, however, this last statement is inaccurate; a ventral tooth *is* present on the valva of *sareptalla*, but this ranges in size from small to minuscule and unless a slide is made of the genitalia, with adequate compression, can easily be overlooked. An indication of the range of variation in the size of this tooth is given in Fig. 14b - d, and it is plain that the variation is not huge. However, a single male example from Beloslav [near Varna], 1♂, 7.VI.1956, leg. KARNOSCHITZKY, in coll. NMNHS, genitalia slide number NMNHS/CWP-002 (Fig. 14a), exhibits a large tooth on the valva that is of similar dimensions to that illustrated by Roesler (Pl. 63 fig. 131). Additionally, there are subtle differences in the form of the transtilla, the culcita (central tooth in *sareptalla* but absent in *albidella*) and the shape of the vinculum that are not artefacts of slide preparation. These differences, in combination, seem to be beyond the range of variation expected in *sareptalla*. *Ancylosis albidella* (RAGONOT, 1888) is reinstated here as a valid species. It should be added that the female is apparently unknown; there is clearly scope for further investigation and clarification.

This appears to be only the fourth European locality for the taxon, which is otherwise known only from West Turkmenistan. It was added to the fauna of Spain by ASSELBERGS (1999) and SLAMKA (2010) mentions single specimens in Slovakia and Hungary, whilst CORLEY has also caught it in Portugal "from Carrapateira in the far south-west 20 years ago" (pers. comm., 17.XII.2014).

The larval foodplant in unknown.

6028 ***Ancylosis sareptalla* (HERRICH-SCHÄFFER, 1861)**
= *sareptella* auct. misspelling
= *barbella* LEDERER, 1863
= *albidella* RAGONOT, 1888

13 records: [1862] – 2011

Varna is the type locality of *Ancylosis barbella* LEDERER, 1862 which is a synonym of *A. sareptalla*; this is also mentioned in ROESLER (1973). LEDERER's specimen was collected by the husband and wife team of JOHANN and LUDMILLA HABERHAUER in 1862. A record from "*Nessebar, June and July*" (SOFFNER, 1967) is probably the same record as Nessebar, 17 – 31.VI.1963 leg. SOFFNER, given in ROESLER (1973). The handful of modern records are all from the Black Sea coastal region, where it seems fairly frequent, except for one – a female collected at Ilindentsi in the south-west on 23.V.2010 by KARSHOLT. There is one old literature report from the south-west at Sandanski, 10-12.VII.1933 (Reisser & Züllich, 1934); it might be useful to locate the specimen and check the identification via genitalia examination. Adults have been noted on 23.v and 7.vi and then from late July (20th) to mid August (15th).

The larva is apparently unknown.

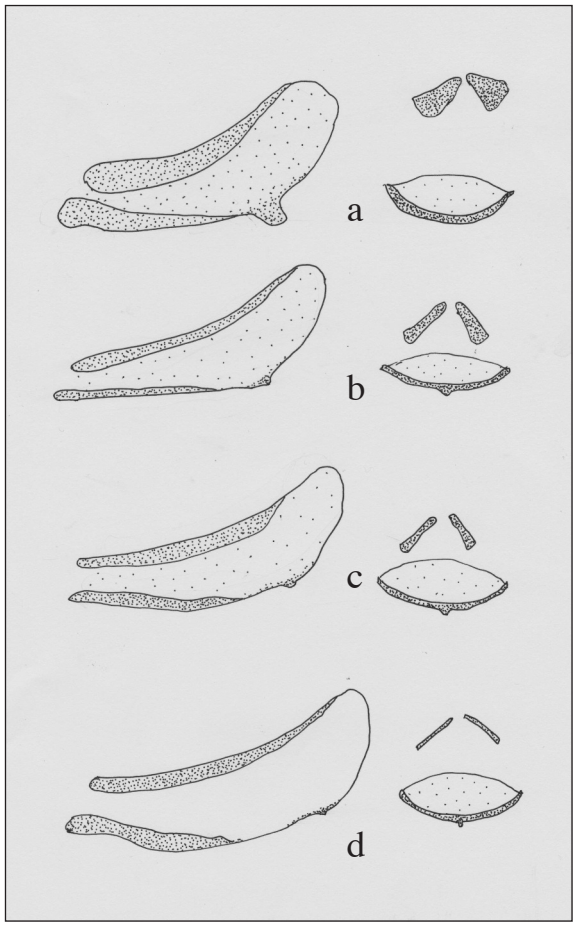


Fig. 14: Variation in the ventral "tooth" on the valva, of the anellus and of the culcita of *Ancylosis sareptalla* (Herrich-Schäffer, 1861) and of *Ancylosis albidella (*Ragonot, 1888). a: *Ancylosis albidella*; b – d: *Ancylosis sareptalla*.

6033 ***Ancylosis maculifera maculifera* Staudinger, 1870**

1 record: [1973] – [1973]

The reference to Nessebar in Roesler (1973) is the only record and I have not personally seen any examples of this taxon.

The larval foodplant is unknown.

6036 ***Ancylosis roscidella* (Eversmann, 1844)**
= *Heterographis roscidella* (Eversmann, 1844)
= *cinerella* Stainton, 1859
= *ephedrella* (Herrich-Schäffer, 1860)

3 records: 1930 – [1973]

The three available records are all from the same area of the Black Sea coast and are all historic. They are the Ak-Bunar Valley, Balchik (now incorporated into the urban area), 1♂, 27.VI.1930 (Popescu-Gorj, 1964) and Nessebar & Vakry (Roesler, 1973). The actual date of the specimens referred to by Roesler in 1973 is unknown, as is the larval foodplant.

6053 ***Ancylosis hellenica* (Staudinger, 1871)**
= *Heterographis hellenica* (Staudinger, 1871)

1 record: [1973] – [1973]

Also present in Macedonia and Greece (Leraut, 2014), the reference to Nessebar (Roesler, 1973) is the only record for Bulgaria and I have not personally seen any examples of this taxon.

The larval foodplant is unknown.

6057 ***Ancylosis oblitella* (Zeller, 1848)**
= *Cabotia oblitella* (Zeller, 1848)

27 records: 1929 – 2011

Older records are all from the coastal area in the east, from the first in the north at Balchik, 12.VII.1929 (Popescu-Gorj, 1964) to further south at Varna, 28.VIII.1936, leg. Karnozitzki, in coll. NMNHS, Then, in the 1980s, there is a flurry of reports from the Blagoevgrad region of the south-west, including from 15.IX.1980 at Blagoevgrad town, 14.VI.1982 & 1.IX.1982 at Kozhuh then 11.VI.1986 at Kresna Railway Station. Finally, after a significant time gap, there is a report from Cape Kaliakra on 21.VIII.2010, leg. Juhász István. Interestingly, these reports, reflected in the distribution map, match perfectly with the areas of interest favoured by collectors in each date period! Thus, although this is clearly not a widespread and common species, the true distribution is likely to extend over a significantly wide area. Adults fly in Bulgaria in the second week of June then after a barely discernible gap from early July (5th) to late July (26th) and again from late August (21st) to late September (21st).

The larvae feed on *Chenopodium* species.

6069 ***Ancylosis deserticola* (Staudinger, 1870)**
= *Staudingeria deserticola* (Staudinger, 1870)

2 records: [1967] – [1967]

The only Bulgarian records are from "Nessebar, July and August" (Soffner, 1967) repeated in Roesler (1973).

The larval foodplant is unknown.

6072 ***Homoeosoma sinuella* (Fabricius, 1794)**

62 records: [1903] – 2013

This is one of the easiest *Homoeosoma* species to recognise, which is fortunate because few, if any, historic specimens would have been critically examined. The earliest report if from Sliven, leg. Lederer, given in Rebel (1903). Today, it is a widespread and not uncommon moth, with adults noted from mid May (11th) to mid September (11th) with no discernible peak or break.

The larvae feed on *Plantago* species, with *P. lanceolata* certainly recorded in Britain, although foodplant data for Bulgaria is quite lacking.

[6075 ***Homoeosoma calcella* Ragonot, 1887**
The mention of this species for Bulgaria in Karsholt & Razowski (1996), which is also the source of the report for Bulgaria on the Fauna Europaea web site, is unlikely to be correct. Roesler (1973) lists only Syria, European Russia, Kurdistan, Afghanistan & Mongolia. Perhaps the locality "Bulgan" (in Mongolia) given by Roesler may have caused confusion.]

6078 ***Homoeosoma inustella* Ragonot, 1884**

13 records: [1973] – 2014

Roesler (1973) refers to Sliven and Nessebar, but does not state a year; this is the earliest evidence of the species in Bulgaria. There are records from the eastern coastal zone from Euxinograd, 5.IX.1981 (Ganev, 1984) and from the Karadere area, 22.VIII.2011 and between Alfatar and Vasil Levsky, 23.VIII.2012, all leg. Beshkov. From the southern mountains there are reports from Kresna, 20.VII.1982, Kozhuh, 1.IX.1982 and the Rozen Pass in the Rhodopes, 13.VII.1981 (Ganev, 1984), whilst in the south-east there were large numbers of both sexes in the light traps near the Bukelon Fortress at Matochina, on the Turkish border, 22.VII.2014, leg. Beshkov. The records do not contradict perceived wisdom that this is a species of dry, grassland habitats and also seem to indicate that altitude is not a particular issue. As can be seen, records range from early June (6th) to early September (5th) but are too few to discern any peaks in flight period.

The larva is unknown.

6079 ***Homoeosoma nebulella* ([Denis & Schiffermüller], 1775)**

40 records: [1903] – 2012

Rebel (1903) records "A male from Sliven on 2.VI." Roesler (1973) lists the species for Sliven and Nessebar; the record from Sliven might refer to the report by Rebel. Buresch (1908) also notes it "In Sofia, in June". More recent reports

indicate that *H. nebulella* is a fairly widespread and not uncommon species in the north-east and east of Bulgaria, but in the west the distribution map appears to show a species that has declined. Records of adults are from the start of June (2nd) to mid September (15th) but there is a gap of 20 days between 7 and 27 July so that there are, perhaps, at least two generations. SLIVOV (1970) tells us that in the Iskar Gorge "Moths fly from the beginning of June to mid-August. It inhabits open grassy areas and flies after sunset".

The larvae feed on Asteraceae such as *Cirsium vulgare*, *Senecio jacobaea*, *Tanacetum vulgare* and *Leucanthemum vulgare*. They are a serious pest of the sunflower, *Helianthus annuus*, in Eastern Europe and the Ukraine.

[6080 *Homoeosoma subalbatella* (MANN, 1864)
Listed for Bulgaria by KARSHOLT & RAZOWSKI, 1996) as a separate species, but now regarded as a synonym of *H. nimbella* DUPONCHEL, 1837 (*vide* LERAUT, 2002).]

6082 *Homoeosoma (Anhomoeosoma) nimbella* (DUPONCHEL, 1837)
= *Anhomoeosoma nimbella* (DUPONCHEL, 1837)
= *subalbatella* (MANN, 1864)

17 records: [1862] – 2011

Records from the west are all fairly old and are from Sandanski, 10-12.VII.1933. leg. REISSER (REISSER & ZÜLLICH, 1934) and from the Iskar Gorge at Lakatnik, 1♀, 21.VII.1964, Cherepish, 1♂, 24.VI.1965 and Romcha, 1♀, 23.VII.1967, all leg. D. VELEV and given in SLIVOV (1970). Whilst I have no reason to doubt these records, it should be placed on record that I have not seen the specimens and have no indication of whether or not they were critically examined. All of the most recent records are made in the north-east and in association with the coastal area here and it is from the Black Sea Coast that the first record for Bulgaria is available, from Varna by LEDERER in either 1861 or 1862 (LEDERER, 1863; REBEL, 1903). An interesting specimen in coll. NMNHS is an example of this species from Euxinograd, labelled as "det. EDWARD MEYRICK"; unfortunately the abdomen is absent and there is no trace of a corresponding microscope slide in the museum. Bulgarian adults have been recorded from late May (23rd) to the end of August (30th) with most dated records falling in the last week of July and throughout August.

The larvae feed on developing seeds in the flower heads Asteraceae species; SLAMKA (2010) lists *Helichrysum, Aster, Artemisia, Senecio* and *Carduus*.

6086 *Phycitodes maritima* (TENGSTRÖM, 1848)
= *carlinella* (HEINEMANN, 1865)
= *cretacella* (ROESLER, 1866)

9 records: 1967 – 2012

There are rather few Bulgarian records of this species, and they divide neatly into two group – one in the eastern coastal lowlands and one in the western uplands. Altitudinal data is absent from the records, but re-examination of the reported localities suggests strongly that this species favours the lower hills and may not extend particularly high up mountains. Adults have been reported on the wing between mid June (14th) and early September (9th) but records are too few to show whether there is more than one generation.

The larvae have been recorded on *Achillea millefolium*, *Tanacetum vulgare* and *Senecio jacobaea*, initially in the upper stem and leaf-axil, later in a silk web among the flowers. SLAMKA (2010) adds *Chrysanthemum*. In countries where a second generation is known, larvae are said to hibernate in a cocoon, but pupation takes place in another cocoon.

6086a *Phycitodes bentickella* (PIERCE, 1937)
= *eliseannae* LERAUT, 2002

1 record: 2011 – 2011

Our only record is from Aida Chalet, 1♀, 12.VIII.2011, leg. BESHKOV, gen. det. by RACHEL TERRY. This is a species that is surely overlooked both in Bulgaria and elsewhere in the Balkans. Until recently, many authors have treated *bentickella* as a synonym of *lacteella* ROTHSCHILD, 1915, which is a common species in Bulgaria. Dissection, ideally of the more distinctive females, is crucial to correct naming of species of *Phycitodes* in the Balkans.

6087 *Phycitodes binaevella* (HÜBNER, 1813)

28 records: 1925 – 2015

ROESLER (1973) notes that in the Balkans, ssp. *binaevella* (HÜBNER, 1813) and ssp. *unitella* (STAUDINGER, 1879) occur in mixed populations. Ssp. *unitella* is said to be a darker grey, but most modern material, which is generally salvaged from

the bottoms of moth traps, is too worn to identify with certainty. *P. binaevella* is only reported, specifically, for Bulgaria, from Nessebar by ROESLER (1973) and this is presumably the same record as that cited above by SOFFNER (1967) in which the subspecies is not stated. In any event, Leraut (2014) regards *unitella* as a mere *forma*, noting that it includes examples from North Africa and the Middle East. *Phycitodes binaevella* is widespread and common in Bulgaria, flying from the start of June (2nd) to mid September (16th), but with most in July.

The larvae have not been found in Bulgaria, but in other countries they feed inside the flower heads of Asteraceae including *Cirsium vulgare*, *Carduus*, *Aster*, *Tanacetum vulgare* and *Artemisia vulgaris*. Winter is passed as a fully grown larva and pupation takes place in spring in a cocoon on the soil surface.

6088 ***Phycitodes lacteella*** **(ROTHSCHILD, 1915)**

34 records: 1928 – 2014

This species is not mentioned by the early twentieth century authors, although both SOFFNER (1967) and ROESLER (1973) list Nessebar, without further information. Our first dated records arise from my examination of material in NMNHS and include Tarnovo, 1♀, 8.VIII.1928, leg. TULESHKOV which is the first Bulgarian record. *Phycitodes lacteella* is a widespread species in Bulgaria; I even caught one female example at light on the roof of the American University in Blagoevgrad during the Conference of *Societas Europaea Lepidopterologica* on 30.VII.2013. Adults fly here from early June (5th) to mid September (11th), with most records from late July throughout August.

The larva is evidently unknown, but almost certainly will be found to feed among the flowers of various Asteraceae. Dead flower heads, cut to include several centimetres of upper stem as well, collected in the autumn, kept outside over winter and then brought indoors during the spring are very likely to reveal this and other species.

6089 ***Phycitodes inquinatella*** **(RAGONOT, 1887)**
= *ravonella* (PIERCE, 1937)

27 records: [1903] – 2014

This is another widespread and fairly common member of the genus in Bulgaria. Rebel (1903) notes "I saw a poorly preserved specimen in Haberhauer's collection in Sliven, where the type must be but rarely because I not seen the species. Often in Dobrogea (and probably in the Bulgarian Danube area". This might well push the first report back to 1861 or 1862 but we cannot be certain of that and so 1903 remains the first date, in square brackets. Soffner (1967) mentions Nessebar for "*Homoeosoma tavonella,* July and August, det. ROESLER". This is evidently a spelling mistake for *H. ravonella*. However, the taxon that we now regard as subspecies *ravonella* (PIERCE, 1937) of *inquinatella* is known reliably only from Sardinia, Sicily and Italy (type locality Ravona, Italy) and is apparently absent from Bulgaria. *P. inquinatella* is equally at home in the lowlands of the coast and the lower altitude uplands of the west and south. Adults fly in these areas from mid July (17th) to mid September (16th) with one early record of a male on 28.V.1931 at Kresna (leg. TULESHKOV, det. PLANT in coll. NMNHS).

As with the preceding species, the larva is evidently unknown, but almost certainly will be found to feed inside the flowers of various Asteraceae and might be bred out in the manner suggested under the previous species.

6090 ***Phycitodes saxicola*** **(VAUGHAN, 1870)**

4 records: 1964 – 2010

The Iskar Gorge at Lakatnik, 1♂ dead in an electric lamp, ix.1964, is the first Bulgarian record of *P. saxicola*, given by SLIVOV (1970) who also proclaims it as new for the country. ROESLER (1973) mentions both Plovdiv and Nessebar but gives no details of either report. Despite having dissected the genitalia of almost all the Bulgarian *Phycitodes* that I have ever seen, I can only produce one modern record, from Black Sea coastal cliff grassland with scrub between Svet Nikola and Balgarevo, 1♀, 13.IX.2010, leg. PLANT, PICKLES, BESHKOV & ZLATKOV. The conclusion is that *P. saxicola* is a rare species in Bulgaria.

As with others of the genus, the larvae feed in the flower heads of various Asteraceae, including *Achillea millefolium*, *Senecio* (including *S. jacobaea*), *Anthemis* and *Tanacetum* species; also on *Jasione* (Campanulaceae).

6091 ***Phycitodes albatella*** **RAGONOT, 1887 ssp.** ***pseudonimbella*** **BENTINCK, 1936**

34 records: 1929 – 2014

The nominate subspecies is considered to be absent from Europe, where the species is represented by the subspecies *pseudonimbella* BENTINCK 1936. SLIVOV's claim for this species as new for Bulgaria from the Iskar Gorge at "*Bov*

railway station, 4.VI.1965, 1♂ from meadows with sparse scrub" is unjustified; that distinction can be claimed by a male from Belasitsa Mountain, 6.VI.1929, leg. TULESHKOV, in coll. NMNHS and dissected by me recently. TULESHKOV also collected examples from Slavyanka, Kresna and West Balkan from 1929 to 1932 and this material too, all seen by me, is in the collection at NMNHS. There is a preponderance of records towards the south-east of the country, which is unusual in comparison with other members of the genus. *Phycitodes albatella* might also extend to higher altitudes than other *Phycitodes*: KARSHOLT collected a male at 1950 m. at Orelyak, 9.VIII.2013. Adults have been recorded flying from the very end of May (30th) to late September (22nd) but two significant gaps indicate three generations of moths, from 30.V. to 7.VI. then after a four week gap from 7.VII. to 18.VIII. and finally after a three week gap from 5.IX. to 22.IX.

The larvae feed on *Senecio*, *Crepis* and *Solidago* species, as well as *Sonchus arvensis*, initially in the upper stem and leaf-axils, but later in a web among the flowers. The winter is spent as a larva.

6098 ***Metallosticha argyrogrammos* (ZELLER, 1847)**

10 records: 1930 – 2014

In Europe, *M. argyrogrammos* is evidently confined to Sicily and the Balkans; it extends eastwards from here and is also found in the Middle East. It is not commonly encountered in light traps in Bulgaria and it has been suggested that it might be more easily found at rest upon, or flying amongst, flowers in daytime sunshine. This is one of many theories that would be worth testing. The preferred larval requirements are unknown and we do not even fully understand the habitats that it prefers. SOFFNER (1967) and ROESLER (1970) both mention Nessebar, but with no additional information. This may or may not refer to collecting by HABERHAUER, but our first dated record is from Kresna, 1♀, 17.VII.1930, leg. TULESHKOV. Modern records are as follows: Bolata near Kaliakra Cape, 1♂, 28.VII.2009 leg. ZLATKOV; Ada Tepe Hill, 21.VII.2011, leg. BESHKOV; Belovo, above Varvara, 537 m., 1♀, 16.VII.2011, leg. BESHKOV; Baltata Forest, 1♂, 22.VII.2011, leg. ZLATKOV & SIVILOV; Matochina, near the Bukelon Fortress, 22.VII.2011, leg. BESHKOV and Orelyak, open montane grassland below the radio mast at 1960 m., 8.VIII.2013, by myself and RYRHOLM. It is potentially interesting that, at the last locality, whilst a small number of moths was noted in the actinic lights positioned in one area several others lights nearby but in similar habitat did not attract any. Thus, although open, upland grassland seems to feature prominently, this is clearly not the entire story as far as the habitat requirements are concerned. The available records give a flight period in Bulgaria from mid June (17th) to early August (8th), but the earliest record is historic (1963) and using only data from the present millennium, the flight period begins in mid July (16th).

The larva is unknown.

6102 ***Plodia interpunctella* (HÜBNER, 1813)**

15 records: 1930 – 2014

This attractive, and rather distinctive small moth is known in the British Isles as the Indian Meal Moth and is a common pest of cereals and various farinaceous products around the world. It is considered probable that access to less well-maintained residences in many rural villages, and probably also in the towns, would reveal that it is widespread and common in Bulgaria. The present dataset consists largely of adults caught at light "out of doors" and so is unlikely to be representative. ROESLER (1970) simply lists "Bulgarien". SLIVOV (1970) noted "Single specimens found in Mezdra, Cherepish, Lakatnik and Romcha. A synanthropic species flying in all warm months of the year and attracted by light in the twilight period"; later, TULESHKOV & SLIVOV (1975) report single specimens found in settlements and rural buildings in the Rhodopes Mountains from April to September. Recorded dates are from March to August, but indoors the species will be continuously brooded as long as the building is moderately warm.

6105 ***Ephestia kuehniella* (ZELLER, 1879)**
= *Anagasta kuehniella* ZELLER, 1879

12 records: 1893 – 2013

The Mediterranean Flour Moth, Indian Flour Moth or Mill Moth, as this species is variously called is another pest of dry plant produce, especially cereals, and as with the preceding species is expected to be extremely under-recorded because collecting effort has been biased in favour of light trapping in natural and semi-natural habitats. The oldest record available is of a female in the collection at NMNHS, collected in August 1893 in Sofia by TSCHORBADJIEV.

PALM (2012) illustrates *Mussidia nigrivenella* RAGONOT, 1888 from Sofia, 5.IX.1956, leg. VIHODCEVSKY, in coll. ZMUC [det. GOATER, ♂ genitalia slide number 384]. Ole KARSHOLT kindly sent me the specimen to examine; it is an exceptionally large (wingspan 25 mm) example of *E. kuehniella*.

6107 ***Ephestia welseriella* (ZELLER, 1848)**

= *Anagasta welseriella* (ZELLER, 1848)
= *Myelois modestella* LEDERER, 1863
= *Myelosis modestella* sensu REBEL (1903) – misspelling

15 records: [1863] – 2013

The report from Varna (ROESLER, 1973), undoubtedly refers to the type of *modestella* collected and described by LEDERER; Varna is the Type Locality of that taxon. The mention by ROESLER (1973) of "Stalin" refers to the same record; Stalin is the former (Soviet) name for Varna. Unlike many others in the same genus, *E. welseriella* thrives out of doors and is well-represented in Bulgarian light traps. The moth is not uncommon, particularly in parts of the coastal zone where unimproved, herb-rich grasslands remain, but is generally absent from areas where the ground is disturbed – presumably as a result of the inability of bulb-producing plants to survive in such places. It has also been encountered in light traps in the Stara Planina at Dolni Varpishta in 2012 and in the hills above Sliven in 2015, as well as in the south-west at Kresna. Dated records shown that adults fly in Bulgaria from late July (22nd) to the end of August (30th); in comparison with many species this is a fairly narrow band of dates.

Unlike many other *Ephestia* species, it is not associated with stored produce and is not a pest species. The larvae feed inside the bulbs of garlic (*Alium* spp.); LERAUT (2014) mentions *Alium flavum* and *A. roseum*.

6109 ***Ephestia disparella* HAMPSON, 1901**

1 record: [1973] – [1973]

The single record of this species in Bulgaria is from Shistov, in the Danube Valley, given in ROESLER (1973). It is a circum-Mediterranean species the biology of which, including the larva, is currently unknown.

6112 ***Ephestia elutella elutella* (HÜBNER, 1796)**

21 records: [1903] – 2015

Known in Britain as the Cacao Moth, Tobacco Moth or Warehouse Moth, *E. elutella* is another pest of stored products and, as with others with similar ecological requirements it will be under-recorded because of the emphasis on a collecting method (light trapping) that is unlikely to be the most efficient technique. Various texts record cocoa beans and tobacco, as well as cereals and dried fruit and nuts, less usually desiccated meat and "in the wild" dry animal carcasses. The larva is also noted devouring insect collections! The reference by ROESLER (1973) to Bulgaria, without detail, probably refers to the mention by REBEL (1903) of the species at Sliven, Sofia and at the Rila Monastery. The Sliven record, in turn, is likely to have been made by HABERHAUER, but that cannot yet be proved. The later mention by BURESCH (1908) for "Low Vitosha. Flies in May and early June and enters houses in the evening" appears likely to relate to additional personal records. Specimens need to be traced and labels examined. The first properly dated records are from collecting by TSCHORBADJIEV who caught a female in Sofia on 11.VI.1923, in coll. NMNHS, gen. det. PLANT. POPESCU-GORJ (1964) records it in the Balchik area on several dates in July 1930 and SLIVOV (1970) notes it "Very common in settlements in the gorge. Moths fly from mid-April until the beginning of October. As well as in natural sites, I have also found this species in buildings such as houses and stores". During the 1980s it was noted at Smirnenski (Montana region), Kyustendil and Kozhuh (Ganev, 1984) and at Fazanovo, 18.VII.1982, leg. ÁBRAHÁM (FAZEKAS, 2009). Since then there have been only two reports, from the home of ZLATKOV at Zhiten, near Sofia, 1♂, 19.VIII.2002 and one from the hills to the north of Sliven town, 18.VII.2015, leg. PLANT & ZLATKOV. Apart from an undated record in March, adults have been recorded from early June (10th) to mid August (19th).

6113 ***Ephestia woodiella* RICHARDS & THOMSON, 1932**

= *Ephestia unicolorella* STAUDINGER 1881 ssp. *woodiella* RICHARDS & THOMSON, 1932 (misidentification)
= *Ephestia parasitella* STAUDINGER 1859 *partim* (misidentification)

27 records: 1953 – 2014

The status of the three taxa *woodiella* RICHARDS & THOMSON, 1932, *unicolorella* STAUDINGER 1881 and *parasitella* STAUDINGER 1859 has been hotly debated (e.g., LERAUT, 2002). The most recent published opinion appears to be that of LERAUT (2014) who asserts that all three are valid species, stating that *E. parasitella* occupies montane regions in Iberia, Switzerland and North Africa and *E. woodiella* is found across the greater part of Europe, including the British Isles, but excluding Fennoscandia. *E. unicolorella*, we are informed, is found in Turkey and Syria. The genitalia of *E. parasitella*, especially in the female, provide good characters which confirm that this is a valid and separate taxon from the others; although the drawn differences (LERAUT, 2002) between *E. woodiella* and *E. unicolorella* appear obvious in the male it is a pity that photographs of actual slides were not presented. The female genitalia of this pair are somewhat similar. Accepting

LERAUT's view, the expected species in Bulgaria is *E. woodiella* and indeed almost all material conforms to this expectation. However, some specimens have been harder to allocate, especially very worn female examples. On a purely geographical basis, it is not impossible that *E. unicolorella* might also be present in the country and this possibility, which increases as the climate changes, should be borne in mind by collectors in the area, especially along the Black Sea coast. A particularly large number of presumed *E. woodiella* attended lights run by me in the company of PICKLES, BESHKOV & ZLATKOV on the coastal sand dunes at Dolni Chiflik on 16.X.2010, during a large immigration of many moth species, suggesting that these taxa *might* be involved in significant movements.

A specimen of *E. woodiella* in NMNHS from Varna, 1♀, 28.VI.1953, leg. KARNOZITZKI is the first record for Bulgaria. Almost all records are from the coastal belt in the east; there are four exceptions: from Shistov (ROESLER, 1973), Zhiten, near Sofia, 1♀, 25.VIII.2002, leg. ZLATKOV, Ilindentsi, 515 m., 1♂, 18.VI.2013, leg. ZLATKOV & KARSHOLT and from the Ticha Dam, 2♀, 17.VIII.2012, leg. BESHKOV & BESHKOV. Adults have been reported from early June (5th) to late September (22nd), with the bulk in August and early September.

Many texts report the larval pabulum as "dried plant matter", but it is clear that many are simply quotes from other sources. Caution is necessary since there is likely to be confusion between the three species.

[6115 *Cadra abstersella* (ZELLER, 1847)

C. abstersella is not shown for Bulgaria on the Fauna Europaea web site at December 2015, nor is it mapped for that country by LERAUT (2014). Nevertheless, there is reportedly a Bulgarian specimen named as this species in the Rome Museum (ZILLI, pers. comm.), which I have not yet been able to examine. There is a high probability that it is misidentified and critical examination is urgently required. Meanwhile, the presence of this species in Bulgaria must be regarded as unconfirmed and so is included here in square brackets.]

6116 *Cadra furcatella* (HERRICH-SCHÄFFER, 1849)
= *intricata* ALPHÉRAKY, 1876
= *afflatella* (MANN, 1855) misidentification.

23 records: 1931 – 2014

POPESCU-GORJ (1964) lists "*Ephestia intricata* B.H." from the Balchik area – a male on 12.VII.1931. Reference to "The Global Lepidoptera Names Index" hosted by BM(NH) at *www.nhm.ac.uk/jdsml/research-curation/research/projects/lepindex/index.dsml* and also the Pyraloidea database at at *www.pyraloidea.org* fails to locate this taxon, but does give "*intricata* ALPHÉRAKY, 1876" as a synonym of *C. furcatella*. Therefore, the Balchik example is regarded as this species and is the earliest record for Bulgaria. ROESLER (1973) lists "*Dobrudscha*" as a Romanian locality for this species; the Dobrudzha (= Dobrogea) region extends across the border between Romania and Bulgaria and includes the Balchik area. It seems at least possible that the POPESCU-GORJ record and the ROESLER report refer to the same specimen. SOFFNER (1967) states "Nessebar, July, as *'afflatella'* det. ROESLER". However, KARSHOLT & RAZOWSKI (1996) indicate that subspecies *afflatella* (MANN, 1855) is recorded from France, Corsica, Sardinia, Sicily and Italy. Modern records of *C. furcatella* are from the south-west up to 1560 m. and the eastern costal zone down to sea level, with adults flying from late May (23rd) to mid September (14th).

It is a pest species, feeding especially on dried fruits and other desiccated plant products.

6118 *Cadra figulilella* (GREGSON, 1871)

2 records: 1914 – 2011

Roesler (1973) mentions "Bulgarien". This might, perhaps, refer to the specimen in NMNHS from Sliven, 1♀, 29.XI.1914, leg. TSCHORBADJIEV, which I dissected in 2014. The only other record is from a site approximately 3 kilometres east of Kavarna, 1♂, 26.VIII.2011, leg. LARSEN.

Known as the Raisin Moth, the larvae of *C. figulilella* feed on various drying and dried fruits, fallen figs and damaged or mouldy clusters of grapes on vines. Such food sources can be found in Bulgaria and it is very likely that this species is present, undetected, in parts of the country.

6119 *Cadra cautella* (WALKER, 1863)

1 record: [1973] – [1973]

C. cautella is known as the Almond Moth or Tropical Warehouse Moth. The only reference to its presence in Bulgaria is that of "Bulgarien" in ROESLER (1973).

The larva is a pest of dried fruits and farinaceous material and the record is likely to be correct. However, there is a need to locate voucher specimens and ensure that critical examination of the genitalia is undertaken and equally there is a need to determine the actual capture locality, since several "Bulgarian" records actually relate to areas now within Romania.

Tribus Anerastiini Ragonot, 1885

6127 ***Coenochroa ablutella* (Zeller, 1839)**
= *Raphimetopus ablutella* (Zeller, 1839)

2 records: [1967] – [1967]

The genus *Raphimetopus* Hampson, 1918 was synonymised with *Coenochroa* Ragonot, 1887 by Leraut (2010). This Mediterranean Basin species is noted for Nessebar, July and August (Soffner, 1967). There is no further detail and there are no other known Bulgarian records.

The larvae have been recorded on Poaceae, especially *Zea mays* and *Saccharum officinarum,* boring into the shoots.

6135 ***Hypsotropa limbella* Zeller, 1848**

12 records: [1967] – 2015

With only a handful of records, this might appear to be a rare species in Bulgaria, yet in spite of its relatively distinctive appearance it is probably overlooked, at least to some extent, because at rest it looks like a "micro" rather than a pyrale and is possibly ignored. Soffner (1967) mentions Nessebar without detail or year; Ganev (1986b) repeats the same record. It was recorded at Burgas on the coast and at Kozhuh and Kresna in the south-west during 1986 or earlier (Ganev, 1986b). The available modern records are from Primorsko, 30.VI.2009, leg. Zlatkov, Komuniga near Zhenda, 11.VIII.2011, leg. Beshkov, Ilindentsi, 4.VIII.2012, leg. Karsholt, above the Devil's Throat at Trigrad, 1280 m., 1♂, 12.VII.2015, leg. C. W. Plant, Belopolyane, 270 m., 5♀ 15.VII.2015, leg. C. W. Plant, Meden Buk, 140 m., 16.VII.2015, leg. C. W. Plant, Mezek, 450 m., 1♂1♀, 17.VII.2015, leg. C. W. Plant and in the hills above Sliven at 1000 m., 1♂, 18.VII.2015, leg. C. W. Plant. These provide our only dated reports and so indicate the adult flight period as far as this is known in Bulgaria.

The larval requirements remain unknown.

6145 ***Ematheudes punctella* (Treitschke, 1833)**

88 records: [1862] – 2015

The earliest Bulgarian record of *E. punctella* is from Sliven, where it was encountered by Haberhauer and reported in Rebel (1903). The reference to "Sliven" in Ganev (1986b) without any detail almost certainly refers to the same record. Rebel (1903) also records this species from the Vitosha area, taken by Drenowski. Five years later, Buresch (1908) reports the species as "*very often in Sofia and the low Vitosha in June, July and August*". In 2015, it was found to remain common and widespread. Examination of the collections at the NMNHS suggest that this has always been the case, with the decades of the 1930s, 1950s and 1980s well represented. The Black Sea coastal area is particularly productive for this species, with older dated specimens from the Balchik area, f. *typica* ♂♂ 21.VII.1928, 26.VII.1928 & 6.VII.1929, f. *typica* ♀♀ 29.VI.1930, f. *pudicella* Zincken 20.VII.1930, 26.VII.1930, 31.VII.1930, 26.VII.1931, 29.VII.1931 & 30.VII.1931 (Popescu-Gorj, 1964) and from Dalgopol, 16.VIII.1958, 18.VIII.1958, 20.VIII.1958, leg. Zlatarsky, in coll. NMNHS. There are undated records from Nessebar, July and August (Soffner, 1967) and from Varna, Burgas and other coastal areas in Ganev (1984; 1986b). More recently I have collected examples from the Balchik area, on coastal cliff ledges with ruderal flora and scrub, 14.VIII.2009. These data support the suggestion in Slamka (2010) that the species prefers dry, open biotopes. However, in Bulgaria the species is also common away from the coast, including in scrub and dry meadows up to 800 m. in the Rhodopes Mountains from May to the middle of August (Tuleshkov& Slivov, 1975) and elsewhere at Kozhuh, 24.VI.1981 (Ganev, 1984; 1986b); Zemen Gorge, Konyavo (now Konyavska) Mountain, 1.VIII.1980 (Ganev, 1984; 1986b); Blagoevgrad, 28.VII.1980 (Ganev, 1984; 1986b) and at Kyustendil, Slavyanka (Alibotush) Mountains, Ossogovo Mountains, Pirin Mountains, Rhodopes Mountains, Strandzha Mountains, Kresna Gorge, the Ograzden Mountains, Razgrad, Plovdiv, West Balkan (at 1800 m.) and Belogradchik (Ganev, 1986b). For the Iskar Gorge, Slivov (1970) has the moth "Common in dry meadows, meadows along rivers and crops of *Alfalfa*. Moths fly in July and August. Attracted to light". Ganev (1986b) records the flight period as June to August, though perhaps merely quoting Buresch (1908). Dated records in the database indicate that the moths fly from 6 June to 22 August, but there is a gap from 9 July to 17 July, perhaps suggesting the existence of two generations.

The larva is unknown. Slamka (2010) suggests that it probably feeds on grasses.

6159 ***Polyocha cremoricosta*** **Ragonot, 1895**
= *Fregenia prolai* Hartig, 1947

4 records: 1981 – 1987.

The synonymy of this species with *Fregenia prolai* was established by Ylla, Zilli & Macià (2012). In adding *P. cremoricosta* to the Iberian fauna, these authors unknowingly also added it to the Bulgarian fauna from material in the Ganev collection in MCZR as follows: Kozhuh, 1♀ on 3.IX.1981, 1♀ on 13.VIII.1982, 1♂1♀ on 17.IX.1987, 1♂ on 17.IX.1987 – all leg. Ganev, det. Zilli. I am not aware of any other Bulgarian material. Elsewhere in Europe, this species is known from Turkey (two locations) Greece (one location), Italy (one location) and Spain (five locations).

Subfamily Pyralinae Latreille, 1809
Ganev (1986b) included *Pyralis manihotalis* (Guenée, 1854) as a distinct species; in this present work it is treated as synonymous with *P. farinalis* (Linnaeus, 1758). The current list of Pyralinae includes 20 Bulgarian species distributed in three Tribes.

Tribus Endotrichini Ragonot, 1890

5661 ***Endotricha flammealis*** **([Denis & Schiffermüller], 1775)**

151 records: [1903] – 2015

A widespread and often common species throughout Bulgaria; the earliest reports are "Taken near Sofia by Buresch" (Rebel, 1903) and the Sofia district, "frequent in the low Vitosha, Losen Mountain and Liulin in July and August" (Buresch, 1908). Records of adults are from 18 June (one) then early July (5th) to late September (24th). When numbers of moths are plotted against standard week number (Plant, 1994) it is seen that there is a significant peak in week 33, from 13 to 19 August.

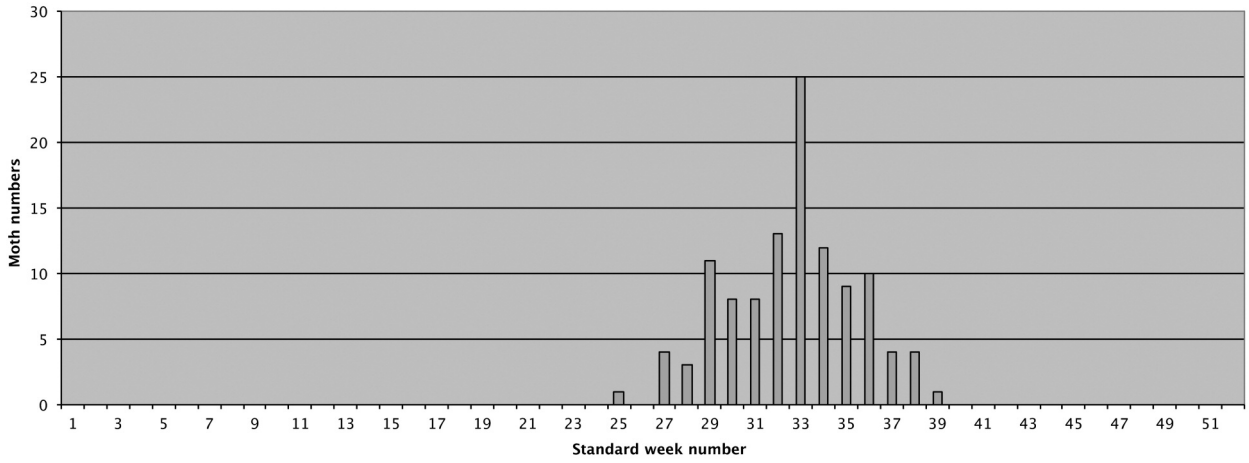


Fig. 15: Flight period by standard week number (horizontal axis) of *Endotricha flammealis* ([Denis & Schiffermüller], 1775) in Bulgaria.

The larvae feed on fallen dead leaves, including those of *Quercus, Salix, Lotus, Agrimonia* and *Vaccinium*. Early instars spin a silk retreat on the leaf, but later instars feed from a loose silk web spun on the ground beneath the leaves.

Tribus Hypotiini Chapman, 1902

5600 ***Hypotia massilialis*** **(Duponchel, 1832)**
= *Palmitia massilialis* (Duponchel, 1832)

9 records: 1931 – 2014

Although recorded across Europe from Iberia to the Balkans and then eastwards to Turkey, the Caucasus and southern Russia, all the Bulgaria records are from the Black Sea coast. They could relate to immigrant examples and therefore all available dates are given here, so that it might be possible to analyse them against immigration data for other groups in the future: Balchik area, 1♀, 15.VII.1931 (Popescu-Gorj, 1964; Ganev, 1986b); Euxinograd, near Varna (Ganev, 1986b); Balchik area, coastal cliff ledges with ruderal flora and scrub, a few, 14.VIII.2009, leg. Plant, Beshkov & Zlatkov;

Kavarna, 1♂, 14.VIII.2014, leg. PLANT; landslip on cliffs between Balchik and Topola, one worn male, 15.IX.2010, leg. PLANT, BESHKOV, ZLATKOV & PICKLES (this date was characterised by significant primary immigration by many species of Lepidoptera); Tuzlata, 1♂, 21.VIII.2010, leg. ZLATKOV & SIVILOV and 1♂, 15.IX.2010, leg., BESHKOV & ZLATKOV; Cape Kaliakra, 1 on 23.VIII.2014 and 1 on 24.VIII.2014, leg. B. STEEN LARSEN. GANEV, 1986b gave the flight period as "August/September", but with no supporting details. The records above extend from mid July (15th) to mid September (15th).

The larva feeds on *Camphorophora* from a silk tube at the base of the plant (LERAUT, 2014).

Tribus Pyralini LATREILLE, 1809

5611 ***Synaphe moldavica* (ESPER, 1794)**
= *diffidalis* (GUENÉE, 1854)

52 records: 2003 – 2011

The records show that *S. moldavica* is widespread across Bulgaria and is found in most areas from the mountains in the west to the coast in the east, although reports from many places need to be updated. Historically, this has probably always been the case. REBEL (1903) reports it "throughout East Rumelia, often in large number from mid-June" and in the same paper "not uncommon on the Sofia Plain during July". BURESCH (1908) does not disagree, recording it from the Sofia district with the comment "everywhere, up to 1000 m. Very variable in colour and size, from yellow-green to brown-red. Flies in the daytime throughout the summer". REBEL (1903) also records a gynandromorph of this species from Sliven. In his review of some pyralid groups in the mid-1980s, GANEV, (1986b) listed many localities – characteristically, without data – indicating clearly that it was widespread and not uncommon at that date. The adult flight period lasts from early June (6th) to early July (10th), but further records might extend this.

The larvae feed on grasses (Poaceae). REBEL (1903) lists *Festuca ovina* and *Stipa* spp.

5614 ***Synaphe antennalis* (FABRICIUS, 1794)**
= *connectalis* HÜBNER, 1796)

7 records: [1863] – 2002

All records known to me are given, as follows: Angel Hill, Sliven, a male (LEDERER, 1863) and a female at the same place by Rebel on 25 June, no year specified, (REBEL, 1903); Belovo [as Varvara], Rhodopes Mountains, 1♂, 21.VI.1956, leg. LUKOV (TULESHKOV & SLIVOV, 1975; GANEV, 1986b); Kardzhali, Rhodopes Mountains, 1♀, 23.VI.1969, (TULESCHKOV & SLIVOV, 1975; BESHKOV & LANGOUROV, 2004; GANEV, 1986b); Vidin, Konyavo Mountains, 18.VI.1979 (GANEV, 1984); Kostinbrod 5. vi. 1986. leg & coll. SZABÓKY; Polska Skakavitsa village, Zemen Mountain, 690 m., 23.V.2002 (PLANT et al., 2003). These indicate an adult flight period from late May (23rd) to late June (25th).

The foodplant is unknown, but the larva probably feeds on grasses (SLAMKA, 2006).

[5615 ***Synaphe lorquinalis* (GUENÉE, 1854)**
This species is restricted to the Iberian Peninsula (SLAMKA, 2006, pers. comm.) and is not known from Bulgaria. Reports from Vidin, Konyavo Mountains, Varvara and Kardzalii (Rhodopes Mountains) and from Sliven, given in GANEV (1986b) under the heading "*connectalis* (HÜBNER) ssp. *lorquinalis* HÜBNER," are dark forms of *S. antennalis*.]

5620 ***Synaphe punctalis* (FABRICIUS, 1775)**
= *Cleodobia angustalis* sensu SOFFNER (1967)
= *Synaphe angustalis* sensu SLIVOV (1970)

82 records: 1903 – 2015

This is a widespread and often abundant species in almost all parts of the country, recorded from sea level to 1980 m., with adults from the start of July (1st) to mid September (19th) with one early report in May (11th). The majority of reports fall in the last week of July and throughout August.

Several authors state that the larva lives in a silk tube on the ground amongst mosses, but careful reading suggests that nobody has actually seen it actually *eating* the mosses; there is more than a hint that some later writers may simply be repeating the words of their predecessors. Amongst the more careful authors, SLAMKA (2006) notes that roots of grasses and other herbs are used, specifically mentioning *Lotus* and *Helianthemum*.

5624 ***Bostra obsoletalis*** **(MANN, 1884)**

2[3] records: [1986] – [1986]

GANEV, (1986b) lists Sliven and Burgas for this species, but no gives no additional information. In the same work, a distribution map shows a third record, from the extreme south-west, but this is not referred to in the text. There are no other records from Bulgaria. The larva feeds on dead vegetation in the litter layer in dry, open habitats (SLAMKA, 2006).

5625 ***Pyralis regalis*** **([DENIS & SCHIFFERMÜLLER], 1775)**

96 records: [1903] – 2015

This attractive moth is a widespread and usually common resident in many parts of Bulgaria and may be more or less expected in most areas where woodland is established. Adults fly in Bulgaria from the start of June (1st) to late October (22nd), but there is a small peak in late July and then a larger one from mid August to early September. The chart below plots numbers against standard week (see PLANT, 1994).

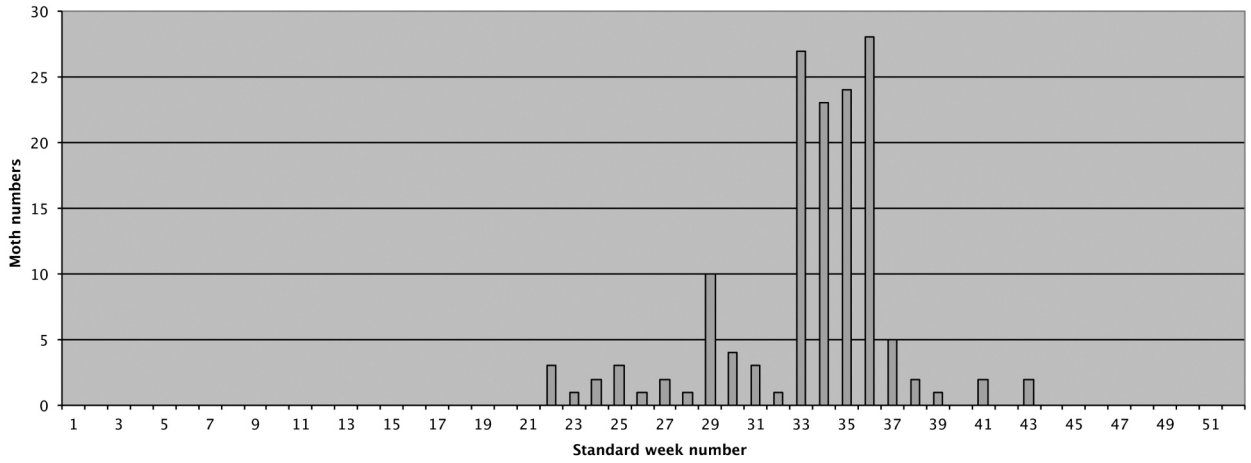


Fig. 16. Flight period by standard week number (horizontal axis) of *Pyralis regalis* ([DENIS & SCHIFFERMÜLLER], 1775) in Bulgaria.

Most texts refer to the fact that the larvae feed on dead leaves in scrub and woodland habitats. SLAMKA (2006) mentions in particular *Rosa*, *Quercus* and *Salix*. Winter is passed in the larval stage.

5627 ***Pyralis farinalis*** **LINNAEUS, 1758**
= *manihotalis* (GUENÉE, 1854)

58 records: 1892 – 2015

The earliest report is from Varna in 1892, given in APFELBECK (1894). REBEL (1903) states that it is "Certainly widespread everywhere in houses, where the caterpillar feeds on flour and vegetables". We can see that it was also common in the 1970s, including places in the Iskar Gorge where SLIVOV (1970) has it as "Common in all settlements in the gorge. It inhabits mainly houses, buildings and markets. Very often attracted by light". It was still widespread and common in 2015. GANEV, (1986b) gives the adult flight period as June to October; dated records available to me in 2015 extend from late May (25th) to late September (24th) with most in August.

The larva are well-known pests, feeding on dried vegetable material such as stored grain, hay and straw, dried fruits, cork and other materials favouring, but not restricted to, farinaceous materials.

5631 ***Aglossa (Aglossa) signicostalis*** **STAUDINGER, 1871**

1 record: 1911 –1911

There is just one Bulgarian record, from Burgas, 27.VI.1911, single specimen in coll. NMNHS, (probably leg. TULESHKOV), presumably the same record as listed without data by GANEV, (1986b). The larvae are myrmecophilous, preferring hosts that nest in tree cavities. SLAMKA (2006) mentions *Liometopum microcephalum* (PANZER) and *Lasius fuliginosus* (LATREILLE).

5632 ***Aglossa caprealis* (HÜBNER, 1809)**

17 records: [1863] – 2015

A. caprealis is a rarely encountered species in Bulgaria. Records with dates attached, or deducible, range from the mid nineteenth century at Sliven (2♂, given in LEDERER, 1863 and REBEL, 1903) to 1♂ on 17.VII. 1965 at Lakatnik (SLIVOV, 1970). Thereafter, there are no certain records of this species until 2014; in that year two examples were captured in light traps in the Smolichano village area, Ossogovo Mountains, 1♀ 11.VIII.2014, leg. Beshkov and in the Odrintsi village area, Eastern Rhodopes Mountains, 1♂ 16.VIII.2014, leg. Beshkov. Unfortunately, although GANEV, (1986b) listed six localities (Nessebar, Burgas, Varna, Balchik, Slavyanka [as Alibotush] and Vidin), all were given without additional information. Looking at these closely, Nessebar is likely to relate to the equally data-less mention in SOFFNER (1967), Burgas might be presumed to refer to material in coll. NMNHS collected between 1910 and 1918, since he would surely have had access to this material, Balchik probably refers to two males collected 24.VII.1932 and mentioned in POPESCU- GORG, (1964) and the Vidin report was already mentioned by him as "Vidin, one male, leg. PETKOV" in GANEV (1984).

It is synanthropic, the larvae feeding mostly on dried vegetable matter including cereals, hay and straw, but also on decaying manure, animal carcasses, suet, lard, pork rinds and other fatty materials including cheese; it is a documented pest in the cheese-making industry.

5633 ***Aglossa pinguinalis* (LINNAEUS, 1758)**

46 records: [1903] – 2010

This is a fairly widespread species that seems to vary in abundance, plentiful in some years and scarce or absent in others. A hundred years ago it was "common in houses in Sofia and Sliven and also recorded at Rila by JOAKIMOW" (REBEL, 1903) whilst BURESCH (1908) reported that it was "an expected species in Sofia, Kniajevo and Vrana Farm. In the evening, they enter houses along with *Ephestia elutella*. I have many of them and one big one – fore wing 19mm and hind wing 15mm". GANEV (1986b) states that this species flies May to September, in two generations. Our records of adults are from early May (2nd) to late October (21st), but there are gaps and in addition there are insufficient numbers to present a meaningful analysis of voltinism. *A. pinguinalis* is a well-known pest of animal feeds, both vegetable and animal, and passes two winters in the larval stage. There is, consequently, a probability that overlapping generations may be present. Furthermore, in indoor situations there is the potential for this species to be more or less continuously brooded.

[—— ***Aglossa asiatica* ERSCHOLT, 1872**

Formerly regarded as a subspecies of *A. pinguinalis*, but raised to specific rank by LERAUT (2003), this taxon is mapped for the extreme south-west Bulgaria in SLAMKA (2006) as an unconfirmed record. There are no additional data and it seems unwise to formally add this species to the Bulgarian fauna on the basis of this less than convincing report. It is, therefore, given here in square brackets. It is a synanthropic species; the larva is detritivorous.]

5637 ***Stemmatophora combustalis* (FISCHER VON RÖSLERSTAMM, 1842)**

38 records: [1903] – 2015

This attractive species is unlikely to be mistaken for any other; the females tend to be especially contrastingly marked. It is a widespread moth that has been found in the southern uplands and the coastal region as well as parts of the Stara Planina and it is probably fairly widely distributed across suitable habitat over the whole country. It sometimes attends light traps in larger numbers than many species and it is strange, therefore that SLIVOV (1970) regarded it as rare, noting that "A female of this rare species was found in Tserovo, 5.VIII.1961, coll. LUKOV". It is a species of dry, open habitats flying from early June (6th) to early August (6th) with a single adult recorded after this period in late August (21st).

The larva feeds on withered leaves an flowers of *Helianthemum* from within a silk tube (SLAMKA, 2006). KING (2002) also records *Thymus* and *Genista scorpius* in Spain.

5643 ***Stemmatophora brunnealis* (TREITSCHKE, 1829)**
= *Actenia brunnealis* (TREITSCHKE, 1829)

71 records: 1935 – 2015

This is a widespread moth in Bulgaria, present in the catch at most sites and often in moderate number. It is a regular visitor at moth traps on the coast and in the mountains up to abut 2000 m.. The database records adults from late July (22nd) to late September (22nd) in a single large generation which is entirely in keeping with the statement in GANEV (1986b) that it is to be found from July to September.

The larva feeds from a silk tube on the roots of plants, including *Helianthemum, Globularia* and ?*Epilobium* (SLAMKA, 2006).

5644 ***Stemmatophora honestalis* (TREITSCHKE, 1829)**
= *Actenia honestalis* (TREITSCHKE, 1829)

13 records: [1986] – 2014

This is a species of dry calcareous grassland in the Mediterranean region and in Bulgaria it is somewhat locally distributed and rarely arrives in light traps in large number. The earliest records are all undated reports given by GANEV (1986b) from Balchik in the east and Skakavitsa (Zemen Gorge), Sestrino (Ograzden Mountains) and Lilianovo (Pirin Mountains) in the south-west. GOATER caught examples at Arkutino, near the mouth of the Ropotamo River at the Black Sea, 22.IX.1995, (GOATER, 1996; BESHKOV & GOATER, 2000), ZLATKOV took it at Ada Tepe, 1♀, 3.VIII.2010 and BESHKOV caught single males at Egrek, 13.VIII.2011, Central Balkan National Park, above Tazha village, 15.VIII.2011 and Odrintsi village in the Eastern Rhodopes, 16.VIII.2014.

The larval foodplant is unknown. GANEV (1986b) noted the flight period as July to September; it is unfortunate that the data from the specimens and localities listed by him was not included.

5646 ***Loryma egregialis* (HERRICH-SCHÄFFER, 1838)**
= *Ulotricha egregialis* (HERRICH-SCHÄFFER, 1838)

3 records: 1982 – 2014

This is a distinctive species that is unlikely to be overlooked or misidentified and so the fact that there are so few records in the database probably suggests genuine scarcity in Bulgaria. During 2014 it appeared in two or three unexpected locations in different countries across Europe (personal observations, e.g., Cadiz, Spain, 8.X.2014, leg. T. FARINO) and the Bulgarian appearance was evidently part of this unexplained synchronicity. GANEV (1984) gives Svilengrad, 3.VII.1982 and 8.IX.1982, leg. KIRIAKOV; his later comment that it occurs in "July to September, in two generations" (GANEV, 1986) can surely only refer to these same two records, as too does the presence in Bulgaria indicated in Slamka (2006). The third record is from Rupite, 19.X.2014, leg. & det. ZLATKOV.

The larva is unknown.

Genera *Orthopygia, Hypsopygia, Ocrasa* and *Herculia*
Orthopygia RAGONOT, 1890 has been widely used as a repository for *glaucinalis* (LINNAEUS, 1758). However, LERAUT (2003) relegated *Orthopygia* to sub-generic status within *Hypsopygia* HÜBNER [1825] and at the same time reduced *Herculia* WALKER, 1859 to synonymy. I accept these changes and in this present work I also follow SLAMKA (2006) in treating *Ocrasa* WALKER [1866] as a subgenus within *Hypsopygia* HÜBNER [1825].

5652 ***Hypsopygia* (*Hypsopygia*) *costalis* (FABRICIUS, 1775)**

123 records: [1903] – 2013

First reported here by REBEL (1903), and with that record probably relating to a much earlier capture by HABERHAUER, this distinctive moth is pretty much ubiquitous in Bulgaria although it never seems to appear in large number. The distribution map shows it as present from the Serbian border in the west to the Black Sea in the east and in all three east-west linear habitat zones in the southern mountains, the central Stara Planina and the Danube Valley towards Romania in the north. Adults are on the wing in Bulgaria from, the very start of May (1st) to late October (22nd).

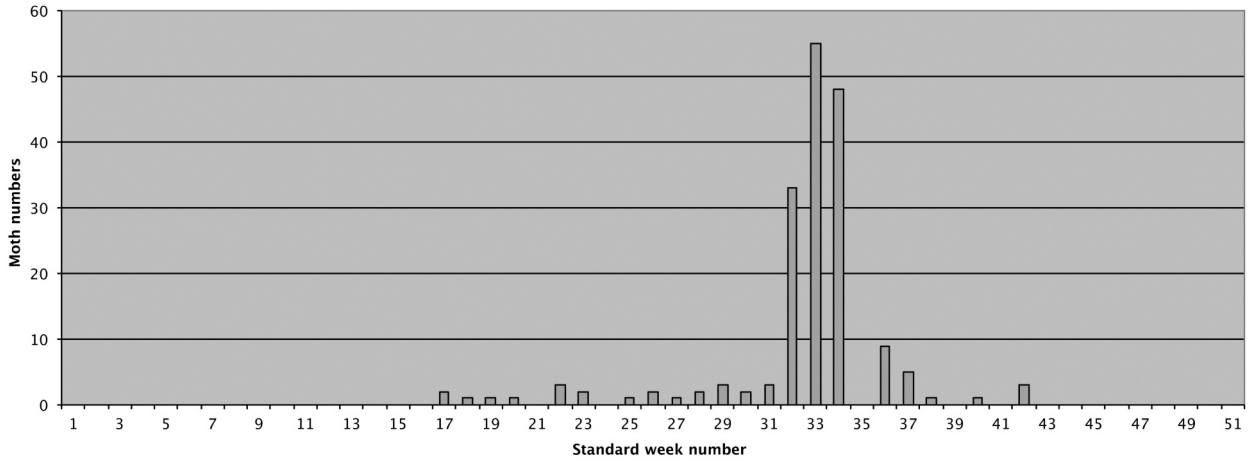


Fig. 17: Flight period by standard week number (horizontal axis) of *Hypsopygia costalis* (FABRICIUS, 1775) in Bulgaria.

The caterpillars feed on dry vegetable matter (SLAMKA, 2006). They have been found in haystacks and thatch, as well as in bird nests. Larvae from the second generation overwinter.

5654 ***Hypsopygia* (*Ocrasa*) *fulvocilialis* (DUPONCHEL, 1834)**
= *Herculia fulvocilialis* (DUPONCHEL, 1834)

26 records: [1903] – 2013

The oldest Bulgarian report of *H. fulvocilialis* is from Sliven, by HABERHAUER (REBEL, 1903); that for Sliven given by GANEV (1986b) probably refers to this same report. There are records from the north-west, the north-east and the eastern Stara Planina as well as the coast and the southern uplands, which suggest that it is likely to be present in most areas, but a glance at the distribution map shows that records made in the present century are confined to the south. The spread of adult records extends from mid June (11th) to early October (8th), with the bulk from August, but with only 26 records in total, any patterns are not yet clear.

The foodplant is not known, but the larva is probably detritivorous.

5655 ***Hypsopygia* (*Ocrasa*) *incarnatalis* (ZELLER, 1847)**

4 records: 1926 – 2010

The central European distribution of *H. incarnatalis* is centred upon Hungary and there are rather few records from the Balkans further south and only four in Bulgaria. The earliest of these is from the Vitosha Mountains, 1.VIII.1926, leg. TSCHORBADJIEV. The voucher specimen supporting this record is in the collections of NMNHS, where there is also another from Varna, 12.VII.1953, leg. TSCHORBADJIEV. Two examples were taken at Fazanovo, 18.VII.1985, leg. ÁBRAHÁM (FAZEKAS, 2009) and the most recent is from Kamchia, 1 ♀, 7.VI.2010, leg. BESHKOV.

The larval pabulum is unknown.

5656 ***Hypsopygia* (*Ocrasa*) *rubidalis* ([DENIS & SCHIFFERMÜLLER], 1775)**

46 records: [1903] – 2014

"Sliven, a female is listed by HABERHAUER" (REBEL, 1903) is the first record for Bulgaria and BURESCH (1908) also notes this species in the Sofia district "several from Vrana Farm in June". *H. rubidalis* is widely distributed across the country and is likely to be present in all areas, though not at all sites. As with *H. glaucinalis*, higher altitudes seem to be avoided. Adults have been noted from late June (21st) to the end of August (30th) with no particular peak or gap; this more or less agrees with the general assertion of June to September given by GANEV (1986b).

The larval pabulum is unknown.

5658 ***Hypsopygia* (*Ocrasa*) *glaucinalis* (LINNAEUS, 1758)**
= *Orthopygia glaucinalis* (LINNAEUS, 1758)

51 records: [1903] – 2013

H. glaucinalis is widespread in Bulgaria, although numbers in light traps tend to be low and it has not appeared at every site. Altitudinal data is not available for the majority of records, but an examination of the localities in the database suggests that it does not extend especially far up the various mountains, preferring the foothills and associated lowland zones. In terms of its phenology and voltinism, GANEV (1984) states "May to October, in two generations". Analysis of all available dated records shows adults on the wing from late June (21st) to late October (22nd) and although numbers are small there may be three generations, in late June to mid-July, from mid August to mid September and then mid to late October, with the middle generation significantly larger than the other two.

The caterpillars feed on decaying plants and dry leaves, including in bird nests, squirrel (*Sciurus*) dreys and thatched roofs of buildings (SLAMKA, 2006).

CRAMBIDAE LATREILLE, 1810

Subfamily Crambinae LATREILLE, 1810

GANEV (1985) listed reliable records for 72 Bulgarian Crambinae. KARSHOLT & RAZOWSKI (1996) add an additional two, *Chilo luteellus* (MOTSCHSCHULSKY) and *Agriphila poliellus* (TREITSCHKE), although the latter species is supported only by an as yet unexamined specimen in Rome Museum (A. ZILLI, pers. comm.), which may or may not be correctly identified. Including this,

there are 74 species of Crambinae currently in the checklist. There are published, but erroneous, records of a further three species: the report of *Catoptria laevigatellus* (Lederer) in Drenowski (1929) cannot be substantiated as there are no voucher specimens and a record of *Catoptria pyramidellus* (Treitschke) seems unlikely to be correct. All reports of *Agriphila geniculea* (Haworth) listed from Bulgaria are treated here as misidentifications of *A. tolli* (Błeszyński); the two species are very similar species and are easily confused. According to Fazekas (2009), *A. geniculea* is an expansive Atlantic-Mediterranean species whilst *A. tolli* is a typical element of the Ponto Mediterranean fauna. The species pair evolved from a single monophyletic unit and the two species are true geo-ecological vicariants (Fazekas, 1995), which are not thought to occur sympatrically in the Balkan Peninsula; personal observations appear to support this supposition.

The following taxa are reliably recorded in Bulgaria:

Tribus Chilonini Heinemann, 1865

In overall appearance, the various members of the tribe Chilonini are rather similar to each other. Freshly emerged adults can usually be identified at sight, but when they become worn they are more difficult to distinguish, and examination of the genitalia becomes important.

6222 ***Chilo phragmitella*** **(Hübner, [1810])**

13 records: 1930 – 2014.

This wetland moth is fairly well-distributed across most of Europe, but the distribution map given by Leraut (2012) shows a general absence from most of the Balkan Peninsula. Bulgarian records are few and the species has its population stronghold at various wetland areas associated with the Black Sea coastal strip in the east; however, there are older reports away from here in the south-west – a general pattern that is repeated for some other wetland species. The earliest record is from the coastal area, from near Balchik on 2.VII.1930 (Popescu-Gorj, 1964). Recent reports from the coastal strip cover the whole stretch from Durankulak, near the Romanian border in the north, where I caught several examples in 2009 and 2010, via Kaliakra, Balchik and Varna to the Atanasovsko Lake in the south (1♀, 9.IX.2014, leg. S. Beshkov). Away from the coast we have records for Kozhuh, 2♀♀, 24.VI.1981 & 1♀, 13.VIII.1982 (Ganev, 1984; 1985a) and without detail from Rila and Vitosha (Ganev, 1985a). *C. phragmitellus* is almost certainly under-recorded and is likely to be found if suitable sites, such as the marsh at Dragoman and elsewhere, are light-trapped at an appropriate date. Ganev (1985a) records adults in "June and September"; dated records available are rather few but suggest a likelihood of two adult generations, potentially overlapping, with "fresh" adults in late June (24th) and early July (2nd) and then after a gap from mid August (13th) to mid September (14th).

Various sources (e.g., Slamka, 2008; Leraut, 2012) concur that the larvae feed internally in the stems of *Phragmites* and also *Glyceria*, where they overwinter before pupating in the stem the following year.

6223 ***Chilo luteella*** **(Motschulsky, 1866)**

5 records: [1996] – 2011

Karsholt & Razowski (1996) include this species for Bulgaria; subsequently, Slamka (2008) notes that it is "mentioned for … Bulgaria", using the same source. The original source of this early record is uncertain. There are just five further records: three on the Black Sea coast (Durankulak, lakeside vegetation near Vaklino village, 1♂, 17.VIII.2009, leg., C. W. Plant, S. Beshkov & B. Zlatkov; Baltata Forest, near Albena, 1♂, 22.VII.2011, leg. B. Zlatkov & O. Sivilov and Atanasovsko Lake, 1♂, 30.VII.2011, leg. S. Beshkov), one in the Stara Planina near Botev peak, Central Balkan National Park (undated in Sakalian, 2000a) and one in the south-western uplands, in the Struma Valley at Novo Hodzhovo Marsh, 1♂, 14.VI.2010, leg. B. Zlatkov & O. Sivilov. It is possibly an overlooked species; although freshly emerged specimens may be distinctive, in many cases separation from *C. phragmitella* necessitates genitalia examination.

The larva is apparently unknown.

6226 ***Chilo pulverosella*** **Ragonot, 1895**

1 record: [1967] – [1967]

Nessebar, July and August (Soffner, 1967). Reports for Nessebar in Ganev (1985) and Slamka (2008) refer to the same records, of which further details are not currently known. European records are few, and only affect the southern part of the continent. It is possible that at least some southern European records may relate to immigrant examples and it would be useful to locate the Bulgarian specimens, if they exist, to ascertain whether or not the dates coincide with any known immigration activity on the part of other species.

The larva is an internal stem feeder and a pest of maize (*Zea mays*) crops.

6229 ***Thopeutis cicatricella* (HÜBNER, [1824])**
= *Friedlanderia cicatricella* (HÜBNER, [1824])
= *Acigona cicatricella* (HÜBNER, [1824])

2 records: [1985] – [1985]

LERAUT (2012) mentions characters of the genitalia as his basis for transferring this species into genus *Thopeutis* HÜBNER, 1818, although no detail of these is given in his text. Nevertheless, his drawings of the genitalia of both sexes appear to support the new synonymy, which is accepted here. The two Bulgarian records of this species lack detail, but are from the north-west corner of the country at Vidin and from Blatnitza, near Varna, both listed by GANEV (1985a). The voucher specimens, if indeed they exist, have not as yet been located, but the identifications are likely to be correct. The apparently disjunct distribution reflects that of other wetland crambids in the country and suggests that this species might be under-recorded. The similarity between the female and some examples of *Donacaula mucronella* ([DENIS & SCHIFFERMÜLLER], 1775) is worth noting as a potential source of confusion, although the latter species, too, seems scarce in Bulgaria.

The larvae feed internally in the stems of *Schoenoplectus lacustris* (= *Scirpus lacustris*); SLAMKA (2008) also mentions *Phragmites communis* [= *australis*]. They pupate in the stem. Elsewhere in Europe adults are noted by various authors in June and July, although GANEV (1985a) states "July/August" – a statement that is presumably based on data associated with the two reported occurrences in Bulgaria, the details of which he did not find it necessary to share.

6233 ***Thopeutis galleriella* (RAGONOT, 1892)**

1 record: [1985] – [1985]

"Burgas?" (GANEV, 1985a) is the only Bulgarian report, but it is unclear whether GANEV's question mark relates to the locality or to the species identification. The mention for Bulgaria in SLAMKA (2008) refers to the same report. (ANIKIN et al., 2003) note that *T. galleriella* is associated with "forest biotopes along river banks"; this does not fit with the Burgas area today, although LERAUT (2012) simply states "banks of watercourses". Although it would be easy to dismiss this record, the species is also noted within the Balkans in the Danube Delta of Romania and for Montenegro in the former Yugoslav Republic. It is more at home, however, in North Africa and eastwards across Asia.

The larval pabulum appears to be unknown.

6231 ***Pseudobissetia terrestrella* CHRISTOPH, 1885)**

3 records: 1981 – 2013

This is a widespread species across the southern part of Europe, in southern Iberia, Italy and the Balkans, but within this zone it is evidently extremely local in distribution and nowhere common. This is also the situation in Bulgaria, whence it has been reported previously from the Petrich district at Kozhuh, 2♀♀, 10.VI.1981 (GANEV, 1984; 1985a) in the south-west and from Banbya, near Burgas (GANEV, 1985a) on the Black Sea coast. More recently, I found 2♂♂ amongst samples from Gradeshka Banya near Kresna, 16.VI.2013, leg. S. BESHKOV.

The larva has been found on maize (*Zea mays*), but the various literature references are careful in their wording to suggest that this has not been formally confirmed as the foodplant.

Tribus Calamotrophini GASKIN, 1988

6235 ***Calamotropha paludella* (HÜBNER, [1824])**

44 records: 1901 – 2014

The earliest Bulgarian record is given by REBEL (1901) who writes that "a well preserved specimen from Vitosha area was sent to DRENOWSKI to determine". BURESCH (1908) also noted it in that era from the "Sofia district, near Kuru-Baylar, but rarely". Today at least, this is evidently a widespread species in many parts of Bulgaria, including the coastal area of the east as well as the southern uplands; the distribution map also indicates a presence in the west. Unsurprisingly, the large areas from which it is absent correspond with those lacking in suitable wetland habitat. GANEV (1985a) gives the adults as being on the wing from May to October in two generations. The details of any May records are obscure; available dated records run from June to October, but the voltinism might not be as simple as suggested. There are groups of records in June (7th to 28th) and July (15th to 31st) with a two week gap between them in which there are no records. There is a similar two week gap at the start of August with that month's records falling from 13th to 19th. There is another three week gap before a record on 9th September, and then one final report on 28th October.

The larvae are internal feeders in the stems of *Typha latifolia* and *T. angustifolia*.

6236 ***Calamotropha aureliellus*** **(Fischer von Röslerstamm, 1841)**

4 records: 1930 – 2010

Available evidence from a variety of sources suggests that this species reaches the western limit of its Palaearctic distribution in Europe and is largely absent from the west. It is rather more common in central Europe than in the Balkans and in Bulgaria there are just four records. Apart from any general deficiencies in the investigation of wetland Lepidoptera in this country, this species is unlikely to be under-reported since the golden lines across its wings render it immediately recognisable – even in worn examples. In date order, it is noted from the Balchik area, 1♂ at Valea Ak-Bunar, 17.VII.1930 (Popescu-Gorj, 1964; also referred to in Ganev, 1985a), Kozhuh, 2♀♀, 10.VI.1981 (Ganev, 1984; 1985a), Varna (Ganev, 1985a) and the Struma Valley at Novo Hodzhovo Marsh, 1♂, 20.VII.2010, leg. B. Zlatkov & O. Sivilov & R. Bekchiev. This gives a flight period in June and July, but for the whole of Europe this is extended to a longer period from May to August (Slamka, 2008)

The larva is apparently unknown. Slamka (2008) suggests "probably on mesophilous grasses".

Tribus Crambini Latreille, 1810

6207 ***Euchromius ocelleus*** **(Haworth, [1811])**

44 records: 1962 – 2015

Euchromius ocelleus is a regular immigrant to Bulgaria, arriving in most years and apparently in relatively low number. Dated records available at the end of 2015 are from early May (2nd) to early July (6th) and then mid August (17th) to early October (3rd). This suggests two generations, which is in keeping with expectations; the number of individuals in the second generation is approximately double that in the first batch. Only a single female, on the coast at Rezovo, 29.VII.2012, leg. Beshkov upsets this pattern and might suggest temporary residency in some years; the species hibernates in the adult stage and so those individuals noted in the period from May to July must either have survived the Bulgarian winter or else represent fresh immigration. On the basis that the majority are in pristine condition, fresh immigration seems more likely than successful hibernation, although in reality there may be a mix of the two. This is an area of research that warrants particular attention.

The larva feed on dried vegetable matter, typically in the litter layer of natural and semi-natural habitats but also, occasionally, as a pest on stored vegetable produce. There are no larval records for Bulgaria on any pabulum.

6210 ***Euchromius bellus*** **(Hübner, 1796)**

99 records: 1903 – 2015

Although the first positive record is from 1903, the species was "known to Lederer from Varna" (Rebel, 1903) and so must have been present several years earlier. The pattern of metallic dots in the terminal area of the forewing allows separation of this species from all other members of the genus possible in the region apart from *E. ramburiellus* (Duponchel), which differs in the form of the orange-coloured median fascia. Nevertheless, worn examples may be problematic and so all material that I have seen personally, including museum material, has been named after genitalia dissection. *E. bellus* is a fairly widespread and common resident species and is certainly the most abundant member of the genus in Bulgaria. It is most abundant at lowland sites, but it is also reported from higher areas, up to 1200 m. in the Rhodopes Mountains (Tuleshkov & Slivov, 1975). Schouten (1992) records it up to 2200 m. altitude in Turkey. Ganev (1985a) noted the flight period as May to September, but the very few dated records in his reports include no May sightings. Dated information in the database shows that the adults fly in Bulgaria in the last week of June and the first week of July then again from the third week of July to the second week of September, with the greatest number of reports in August. This seems to suggest two generations, which is expected in southern Europe.

According to Slamka (2008) the larvae feed on dry leaves of *Picris* and *Hieracium* and have also been found in flowers of *Scabiosa*.

6212 ***Euchromius superbellus*** **(Zeller, 1849)**

21 records: 1929 – 2011

The overlap of gross morphological features means that the separation of *E. superbellus* from *E. rayatellus* (Amsel) needs to be achieved by examination of genital characteristics in all cases. *E. superbellus* is apparently a rather local and uncommon resident in Bulgaria. Slamka (2008) states that it is typically a species of dry calcareous grassland up to 1200 m. and is also found on dry steppe habitat; the majority of Bulgarian records confirm that suggestion, but a few from the

coastal area do not. Those from the Balchik area in the years from 1929 to 1931 (POPESCU-GORJ, 1964) cannot be allocated to a specific area, but it is probable that the steppic grassland habitat may then have been more extensive. It is also unclear if this material has been critically examined, but the presence of the species in the coastal zone is nevertheless confirmed by a specimen from Varna, 30.VI.1955, leg. ZLATARSKY, in coll. NMNHS and another from the University Botanical Garden at Varna on 30.VI.2004, leg. B. ZLATKOV, both examined by me. Dated records in the database show adults from mid May (17th) to early June (10th), then from the end of June (30th) to the end of July (30th) and finally one on 3 September. The absence of August records is interesting because almost all reports of the identical-looking *E. rayatellus* relate to that month.

The larva is apparently unknown.

6214 ***Euchromius rayatellus*** **(AMSEL, 1949)**

7 records: 1953 – 2009

Separation from *E. superbellus* has been discussed above. *E. rayatellus* is apparently a rather localised resident species that is evidently confined to the Black Sea coastal area in Bulgaria, where adults have been recorded in June and August, with the bulk in the latter month. According to BUDASHKIN (1992) it is associated with dry, open habitats and the Bulgarian records support this suggestion, known localities being Balchik, 28.VI.1953, two specimens in NMNHS (these are probably the source of the record from Balchik given in GANEV, 1985a); Nessebar, July (SOFFNER, 1967; GANEV, 1985a); Sozopol (GANEV, 1985a); Balchik, coastal cliff ledges, 14.VIII.2009, leg., C. W. PLANT, S. BESHKOV & B. ZLATKOV; Kavarna, coastal cliff top grassland, 15.VIII.2009, leg., C. W. PLANT, S. BESHKOV & B. ZLATKOV; Dolni Chiflik area, *Fraxinus*-dominated woodland near mouth of Kamchia River, 16.VIII.2009, leg., C. W. PLANT, S. BESHKOV & B. ZLATKOV and west of Topola on coastal cliffs and ledges, 18.VIII.2009, leg., C. W. PLANT, S. BESHKOV & B. ZLATKOV. As a consequence of this apparent restriction, it is possible that this species might become endangered in Bulgaria if the present relentless development of the Black Sea Coast for leisure activities continues at its present rate.

The early stages appear to be unknown.

6217 ***Euchromius ramburiellus*** **(DUPONCHEL, 1836)**

1 record: [1985] – [1985]

The only report of this species in Bulgaria is that given by GANEV (1985a) which simply states "Burgas". It is mapped for Bulgaria in SLAMKA (2008) on the basis of the same source (F. SLAMKA, pers. comm.). I have no further information; no examples of this species are present in NMNHS.

According to SCHOUTEN (1992) it is a species of low altitude, dry steppes where the larva feeds on dead leaves at the base of *Cirsium* spp., *Hieracium* spp. and *Cichorium* spp.

6241 ***Chrysoteuchia culmella*** **(LINNAEUS, 1758)**
= *hortuella* (HÜBNER, 1796)

25 records: 1902 – 2014

In the past, the names *hortuella* HÜBNER, *dumetella* HÜBNER and *culmella* LINNAEUS have all been applied to the species which today we call *culmella*, and so caution is required in interpreting older literature reports. BURESCH (1908) reports "*Crambus hortuellus* Hb." from Sofia, "only one, in 1903" but also lists *dumetella* HÜBNER, a species now known as *Chrysoteuchia culmella* (LINNAEUS), separately in the same paper. REBEL (1903) lists "*Crambus Hortuellus* Hb." from Sophia (leg. BURESCH) and "*Crambus culmellus* L." at both Rila Monastery, where it was uncommon in 1902 (leg. REBEL) and the Vitosha area (leg. REBEL, det. DRENOWSKI). By process of elimination, it becomes apparent that BURESCH applied *hortuella* HÜBNER to one of the forms of *culmella* sensu LINNAEUS which, at that date, he clearly regarded as a separate species. Later, DRENOWSKI (1925) records *culmella* between 700 and 1900 m. in the Sara Planina, Vitosha, Rila, Pirin and Rhodopes Mountains and this is considered likely to be the source of the statement in GANEV (1985a) that the species is "Throughout Bulgaria in the lowlands and in the mountains up to 2000 m.". Overall, there are rather few records, distributed sparsely in the southern uplands, around Sofia, the Stara Planina and in the southern part of the coastal region. *C. culmella* is a species that fares rather better in northern Europe than in the south. GANEV (1985a) noted the flight period as June to August and present data supports that range, although dated records fall between early June (10th) and mid July (19th) with August records lacking the specific date (Rhodopes Mountains – "very common in clearings in the mountain and the subalpine belt from June to the middle of August" (TULESHKOV& SLIVOV, 1975).

The larvae live in the roots and lower stems of various grasses (Poaceae), with *Festuca* apparently a favoured genus in Britain, though there are no data from Bulgaria. The full-fed larva over-winters in a cocoon on the ground and pupates in the spring.

Genus *Crambus* Fabricius, 1798

Care is required in the interpretation of older reports of "grass moths" of the genus *Crambus*. Overall, the genus is poorly represented in the Balkan Peninsula with most species not extending further south than the region of Hungary and Romania. Amongst species that are present, there has been considerable nomenclatural confusion between *C. pratella* (Linnaeus) and *C. lathoniellus* and this, coupled with the generally similar appearance of the two species, may well have led to a number of incorrect identifications. A published record of *C. palustrellus* is considered to be an error and this species is here deleted from the Bulgarian list (reasons are given below). Two species that are very rare in the Balkans, *C. silvella* and *C. uliginosella*, are both morphologically similar to the widespread and common *C. pascuella* and their inclusion on the Bulgarian list is unsupported by any accessible voucher specimens. Both are evidently accepted as present by Slamka (2008) and Leraut (2012), in spite of their being absent from much of the Balkan Peninsula. Neither is likely to be currently present in Bulgaria and whilst both are retained on the Bulgarian list for the time being it is clear that voucher specimens, if they exist, need to be accessed and critically examined.

6243 *Crambus pascuella* (Linnaeus, 1758)

19 records: 1902 – 2015

This widespread and common European grass moth was first recorded in the country from Sofia on 18.VI.1902 (a specimen without further data in coll. NMNHS). It remains present, but is almost entirely restricted to the south-west, with just a single (old) locality on the coast shown in the distribution map. This might initially be considered to reflect a greater concentration of recording effort in the south-western region compared with everywhere else, but that rather belies the fact that the coastal strip is itself fairly well studied. Additionally, there are a great many apparently suitable sites from which it has not been reported; the small number of records is surprising and might indicate a decline in frequency over the past hundred years. Buresch (1908) recorded it in the Sofia district as "*everywhere*". Slivov (1970), writing about the Iskar Gorge records it as "common in clearings, meadows near rivers and forage crops". For the Rhodopes Mountains, Tuleshkov& Slivov (1975) regarded it as "common in clearings and meadows on the mountains up to the subalpine belt from June to the middle of August". Subsequently, in the first (and only) summary of Crambinae in Bulgaria, Ganev (1985a) simply stated "in low-lying land up to 2000 m.", leaving the reader to assume that the species was, at that date, not noteworthy! It remains present, and is likely to occur in most grassland sites including open meadows, woodland rides and others. However, it is certainly less common than in suitable north-western European sites during the same time period, and the details of its present distribution need investigation. Adults fly from late May (24th) to mid August (11th) and are often active by day; in general they are poorly represented in light trap samples.

The larvae feed from a silk tube spun in the base of grasses (Poaceae), perhaps preferring *Poa annua* and other *Poa* species (personal observations in England). Slamka (2008) also mentions *Trifolium* species and mosses (Bryophyta), but gives no details.

6244 *Crambus silvella* (Hübner, [1813])

1 record: [1985] – [1985]

This is a species of open habitats, typically those that are damp such as marshes, fens and bogs and it is absent from most of the Balkan Peninsula, where it occurs only in the far northern region in Romania, Hungary and Bosnia-Herzegovina. The only Bulgarian record is from Spanno Pole, in the Pirin Mountains, mentioned without details in Ganev (1985a). The listing by Slamka (2008) is based on this single report. A specimen to support this record has not been located and so it is possible that the identification is unsound, although Ganev was experienced in the identification of this group of moths; this is, clearly, a matter that requires urgent investigation. Whatever the results of any such investigation, it is extremely unlikely that *C. silvella* occurs in Bulgaria during the present time.

Elsewhere in Europe, the adults fly in July and August during the day and at night they also come readily to light. The larvae are associated with sedges (*Carex* spp.) (Goater, 1986).

6245 *Crambus uliginosella* Zeller, 1850

2 records: [1985] – [1985]

The only Bulgarian records are from Kresna and Kozhuh, both in the Blagoevgrad region of the south-west, and are given without any further information in (Ganev, 1985a), who also notes the adult flight period as May and August. In northern central Europe, it is a species of moorland and other upland habitats that are damp or wet. It is more or less absent from the west and the south and records from the Balkans are few indeed. It is unlikely to be a resident species in Bulgaria.

The larvae are associated with grasses (Poaceae) (Goater, 1986).

[6249 *Crambus palustrella* RAGONOT, 1876

Incorrectly recorded from Sliven by GANEV (1985a), who had undoubtedly read the report by REBEL (1903), who records a single, very well-preserved male collected by HABERHAUER from the Sliven area [probably in 1866] noting that it differed only marginally from RAGONOT's type and recording the wingspan as 11 mm. *C. palustrella* is restricted to France (*vide*, e.g., SLAMKA, 2008); the Bulgarian moth is considered to be a small specimen of *C. pratella* (LINNAEUS, 1758).]

6250 *Crambus pratella* (LINNAEUS, 1758)

= *dumetella* HÜBNER, [1813]

17 records: 1966 – [1985]

There are rather few records from rather few localities suggesting only a local distribution for this species. More significantly, there are no modern records; the last mention in the literature is by GANEV (1985a) who lists Pirin and Rila without details or date as well as some dated records from earlier years. All known records are listed here. REBEL (1903) reports that he disturbed one moth (as *Crambus Dumetellus* Hb.), which flew off and was not captured, in the village of Shipka on 25.VI.1896; the reference to Shipka in GANEV (1985a) is presumed to relate to the same record. From the Iskar Gorge are reports at Cherepish, 26.V.1966, 1♂ on a slope planted with *Pinus* and Bov, 1♂ 1♀ from the meadows along the Shaklya River (SLIVOV, 1970): the records in GANEV (1985a) are assumed to relate to these. SOFFNER (1967) adds "Borovets, July" but with no year mentioned. Also lacking in a year is the report from the Rhodopes Mountains – "single specimens are found everywhere in clearings and meadows in the mountains and the subalpine belt in June and July" in TULESHKOV& SLIVOV (1975), though the inference from the text is that the records are current. GANEV (1984) lists Zemen Gorge (Konyavo Mountain), 1.VI.1979, Bunkera, Vitosha Mountain, 1♂, 9.VI.1979, Chepelare (Rhodopes Mountain), 1♀, 6.VI.1981, Persenk (Rhodopes Mountains), 6♂♂ 2♀♀, 5.VI.1981 and Kozhuh, 1♂, 10.VI.1981, all of which are repeated in (GANEV (1985a). The latter work also adds Pirin and Rila but fails to mention a year – leading to the supposition that these records might be regarded as "current". It seems improbable that the species has been lost, and it ought to be looked for in suitable habitats. The records mentioned indicate an adult flight period from late May (26th) into June and July.

Elsewhere, the larvae feed on shoots of grasses (Poaceae) feeding from a detritus-covered silk tube at the base of the plants where they also hibernate, pupating the following spring.

***Crambus lathoniellus* (ZINCKEN, 1817) / *Crambus isshiki* MATSUMARA**

The illustration provided by BŁESZYŃSKI (1965) indicates that the Eastern Palaearctic species *C. isshiki* MATSUMARA, 1925 is remarkably similar in overall appearance to *C. lathoniellus*; several Bulgarian examples of *C. lathoniellus* show some overlap of these morphological features. The holotype of *C. isshiki* does not have an abdomen and the opinion of BŁESZYŃSKI that *C. isshiki* is a valid species was based on photographs sent to him by OKANO. In the Bulgarian (and British) specimens of *C. lathoniellus* that have been dissected by me there is constant agreement of the characters of the male valva with those of *C. isshiki*, although the aedeagus seems to be correct for that of *C. lathoniellus*. It thus seems possible that the drawings of the genital capsules (but not of the aedeagi) of *C. lathoniellus* and *C. isshiki* are transposed in BŁESZYŃSKI (1965)? If this is not the case, then the status of the two species might require closer investigation.

6251 *Crambus lathoniellus* (ZINCKEN, 1817)

= *nemorella* (HÜBNER, [1813])
= *pratellus* auct.

19 records: 1953 – 2014

LERAUT (2012) regards this species as "undoubtedly Europe's most widespread pyralid". In Bulgaria is it probably very much under-recorded, and the distribution map shows it confined to the south-west. This is probably a reflection of the true situation, although the species is doubtless under-recorded. A major contributor to the paucity of records is likely to be the lack of daytime sampling with a net; the species does visit light traps, but personal experience in Britain suggests that it does so relatively sparingly. Older records are from Rila Cloister, 1♂, leg. KARNOZITZKI, 10.VII.1956, specimen in coll. NMNHS mentioned also in GANEV (1984), Borovets (Rila Mountain), 1♂, leg. Botcharov, 16.VII.1953 (GANEV, 1984; 1985a), Kostenets (Rila Mountain), 1♂, leg. BOTCHAROV, 22.VI.1954 (GANEV, 1984) and undated from Borovets in July (SOFFNER, 1967). More recent published reports are from Panitchishte (Rila Mountain), 1♀, 17.VII.1980 (GANEV, 1984), Ossogovo, 2♂♂ 1♀, 2.VII.1980 (GANEV, 1984; 1985a), Chepelare (Rhodopes Mountain), 1♂, 6.VI.1981 (GANEV, 1984), Zemen Gorge (Konyavo (now Konyavska) Mountain), 1♂, 9.VII.1980 (GANEV, 1984; 1985a), Izgrev (Rhodopes Mountain), 1♂ 1♀, 31.VII.1982 (GANEV, 1984) and Vitosha, undated (GANEV, 1985a). Only two recent collections have been made, from near Hadzhimovo, Mesta Valley, 21.VII.2004, leg. & in coll. B. ZLATKOV and from Gotse Delchev, Blagoevgrad, 3♂♂, 19.VII.2009, leg. S. BESHKOV. Dated records suggest an adult flight period from early June (6th) to the end of July (31st). GANEV (1985a) suggests June to August, perhaps indicating that his list of records was incomplete.

The larvae feed amongst the bases of *Deschampsia cespitosa* and other grasses from silk tube, pupating in April, after hibernation.

6253 ***Crambus perlella*** **(Scopoli, 1763)**

12 records: 1903 – 2004

Drenowski (1925) records this species, as f. *typica*, between 700 and 1200 m. in the Stara Planina and Vitosha Mountains. Interestingly, he notes the darker form *warrintoniella* Stainton at higher altitude, between 1100 and 1900 m., and only in the Rila and Rhodopes Mountains. This is at odds with data from the south of England where both forms fly together at low altitudes. Tuleshkov& Slivov (1975) regarded it as common in damp meadows and scrub in the mountain and subalpine belt (in the Rhodopes Mountains), from June to the middle of August, but added that " Forma *warringtoniellus* is more common". In keeping with other *Crambus* spp., this moth is widespread but very local in south-west Bulgaria. It comes only rarely to light traps and there can be no doubt that daylight netting in open meadows and other grasslands would generate additional records. Available records indicate a flight period from July to early August in Bulgaria.

The larva feeds on the shoots of grasses (Poaceae) from within a silk tube constructed amongst stem bases at ground level.

6257 ***Agriphila deliella*** **(Hübner, [1813])**

17 records: 1898 – 2014

This is one of the autumn-flying "grass moths" and it is on the wing at the same time as *A. tristella* ([Denis & Schiffermüller], 1775) with which the females may be confused. For Bulgaria it was first reported from Sliven by Haberhauer (Rebel, 1903). This record could have been made as early as 1866, but the first dated record available is a specimen collected at Sliven 24.VIII.1898 by an unknown collector (specimen in coll. NMNHS). Reference to Sliven in Ganev (1985a) most likely refers to the Haberhauer record. In the 1960s it was present in the Iskar Gorge at Romcha railway station, 1♂ on 9.IX.1965, 1♀ on 22.IX.1967, leg. Velev and 2♂♂1♀ 25.IX.1965, coll. Lukov and at Bov railway station, 18.IX.1964, 1♂1♀ from dry meadows on the slopes (Slivov, 1970). Tuleshkov& Slivov (1975) reported "single specimens found everywhere in deciduous forests in September" for the Rhodopes Mountains, and this is likely to be the situation today throughout most of the upland zones of the country, although the higher altitudes are apparently avoided in favour of warmer and drier lower slopes. The moth flies from the end of August (24th) to early October (8th) perhaps later in October, after most entomologists have departed.

The larva is thought to be associated with grasses, but I have not been able to locate any literature reference that positively states this to be the case. The moth prefers dry, well-drained grasslands, usually on slopes and typically in warm situations.

6258 ***Agriphila tristella*** **([Denis & Schiffermüller], 1775)**

49 records: 1903 – 2015

Perhaps the most frequently encountered "grass moth" in light traps, this is a widespread and abundant member of the Bulgarian fauna. It is found in suitable habitat in both lowland areas and in the uplands up to 1950 m. as well as on the coast, with adults on the wing from late July (25th) and throughout August and September until late October (22nd) with no apparent break or peaks. Confusion is possible with some examples of *A. deliella*, but in males an examination of the antenna is sufficient to provide immediate separation: with the unaided eye or at only low magnification those of *A. tristella* appear filiform whilst those of *A. deliella* are distinctly pectinate. A single male example fitting the description of *Agriphila argentistrigella* (Ragonot, 1888) was taken at mv light at "The Devil's Throat" at Trigrad, 1280 m., 1♂, 17.IX.2010, leg. C. W. Plant, A. J. Pickles, S. Beshkov & B. Zlatkov. In addition to forewing characters, the hindwings are pure white and the cornuti within the aedeagus are minute. Nevertheless, a review of European records suggests that this is likely to be an incorrect identification and for the time being it is treated as a variety of *A. tristella*.

The larva feeds on grasses from a detritus-covered silk tube in the base of the plants in which it also hibernates before pupating in the spring.

Agriphila inquinatella **([Denis & Schiffermüller], 1775) and** ***Agriphila paleatella*** **(Zeller, 1847) =** ***brioniella*** **(Zerny, 1914)**
Separation of these two taxa can be problematic. The females are impossible to separate on genitalia alone and the extent to which it is possible to name males is debatable. External characters are of greater importance and consequently it is often impossible to name worn examples with certainty. In terms of external morphology, confusion is also possible with *A. tolli* and *A. geniculea* if the specimen is in less than perfect condition; this is reinforced by the discovery that a small number of specimens from Euxinograd, 20.IX.1925, leg. Buresch, in coll. NMNHS, labelled as "*Crambus inquinatella*" by Edward Meyrick, proved to be *Agriphila tolli* upon critical examination during 2012. A significant number of specimens collected from the bottoms of light traps during recent years must, as a consequence, remain unidentified and these are omitted from the following species accounts which would, otherwise, be based upon a greater number of records.

6260 ***Agriphila inquinatella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

32 records: 1901 – 2015

GANEV (1985a) reported this moth as "throughout Bulgaria, up to altitude 1500 m." and this is surely the case today. TULESHKOV& SLIVOV (1975) regarded it as "common in dry grassy slopes up to 1400 m. from June to the middle of September" in the Rhodopes Mountains, and modern collecting has produced examples from a wide range of localities. Older records are rather few, but the earliest available is from REBEL (1901), who notes "I saw a poorly preserved specimen in Haberhauer's collection in Sliven … often in Dobrogea (and probably on the Bulgarian side of the Danube" [my translation]. Available records indicate that the moths fly in Bulgaria from early August (12th) to the end of September (30th).

The larva feeds from a silk tube in the bases of grasses (Poaceae). Both GOATER (1986) and SLAMKA (2008) indicate that *Festuca ovina* is the preferred grass species, though the latter author also records *Poa* species.

[6261 ***brioniella*** **(ZERNY, 1914)**
Treated in this work as synonymous with *Agriphila paleatella* (ZELLER, 1847) – next.]

6262 ***Agriphila paleatella*** **(ZELLER, 1847)**
= *Agriphila brioniella* (ZERNY, 1914)
= *Agriphila vasilevi* GANEV, 1983

52 records: 1954 – 2015

FAZEKAS (1990) convincingly synonymised *Agriphila vasilevi* GANEV with *brioniella* ZERNY; this is of relevance to the present text because the type locality of *A. vasilevi* is in Bulgaria – Halpatch, north-west of Chepelare, Central Rhodopes, 900 m., 18.VIII.1980, 1♂ (GANEV, 1983b). *Agriphila paleatella* is listed as unconfirmed for Bulgaria by SLAMKA (2008) on the basis of GANEV (1985a). However, that latter work includes *paleatella* only as a synonym of *brioniella* and specifically states that the species under discussion is not the *paleatella* of ZELLER – then regarded as a separate species; *brioniella* is clearly intended here. Since that date *brioniella* ZERNY has been synonymised with *paleatella* ZELLER by LERAUT (2012), although supporting data was not presented. This leaves a small mystery with regard to the reference by GANEV to a species that is "not the *paleatella* of ZELLER". In his two papers on the group, (GANEV, 1984; 1985a), he specifically records "*paleatella* SLIVOV (non ZELLER), 1981" as follows: Zemen Gorge (Konyavo (now Konyavska) Mountain), 2♂♂ 1♀, 1.VIII.1980; Kresna Gorge, 1♂, 19.VIII.1980; Euxinograd, near Narna, 4♂♂, 5.IX.1981; Kozhuh, 3♂♂, 1.IX.1982 plus Zeravna, Sliven, Iskar Gorge and Ograzden Mountains at Churichene, Ribnik, Varna and Arkutino, south of Burgas, 1♂, all undated. Remaining records all relate, without doubt, to the species previously known as *brioniella*. The earliest record is of a male from Varna (as "Stalin"), 29.VIII.1954, in coll. NMNHS. An earlier record, given in DRENOWSKI (1923), is in error for *A. inquinatella – vide* BŁESZYŃSKI (1965). *A. paleatella* is a widespread and abundant insect at light traps across most parts of the country.

The larva is unknown; other members of the genus are associated with grasses (Poaceae).

6264 ***Agriphila latistria*** **(HAWORTH, [1811])**

5 records: 1985 – 1995

This is evidently a rare species in Bulgaria, although like many others it will be under-recorded to some degree. Old records are from Ribnik and Churichene, both in the Ograzden Mountains and from Burgas, all undated and listed in GANEV (1985a). Modern records are from Zhaltichalsko Dere, near Meden Buk village, 150 m., 20.IX.1995 (GOATER, 1996; BESHKOV & GOATER, 2000; BESHKOV & LANGOUROV, 2004) and from Arkutino, 22.IX.1995 (GOATER, 1996; BESHKOV & GOATER, 2000). SLAMKA (2000) considers this to be a halophilic species that "inhabits mainly salt biotopes (salt meadows, coastal hills, dunes), chiefly along sea coast"; the Bulgarian data do not wholly support that suggestion. The limited data show a flight period in September.

The larva feeds from a silk tube in the base of grasses of the genus *Bromus* in other parts of Europe.

6266 ***Agriphila selasella*** **(HÜBNER, [1813])**

4 records: 1967 – 1982

This species is typically associated with wet areas, especially where these are coastal and it is evidently very rare in Bulgaria. The three records are from Kresna Gorge, 1♂ 27.VIII.1982, leg. LUKOV (GANEV, 1984; 1985a); Rila Cloister, undated in GANEV (1985a) and Nessebar, September and October, in SOFFNER (1967), which is the presumed source of the report, without detail, in GANEV (1985a).

Elsewhere, the larva has been associated with grasses including *Puccinellia maritima*, *Glyceria* sp., *Festuca* sp., *Poa* sp. and *Hordeum* sp. (e.g., SLAMKA, 2008).

6267 *Agriphila straminella* ([DENIS & SCHIFFERMÜLLER], 1775)

32 records: 1955 – 2014

This is a widespread and fairly common grass moth in Bulgaria. Its apparent scarcity in the Balkan Peninsula might be artificial, but a big surprise is that there are no Bulgarian records prior to the year 1955. This fact currently defies explanation. That early record is based on a specimen from the Rila Mountains, 25.VIII.1955, leg. KARNOZITZKI, in coll. NMNHS. *A. straminella* is a species of dry, open grassland habitats and is likely to be under-recorded in many places where the distribution map suggests that it is absent. In Bulgaria, the adults fly from mid July (19th) to early September (9th), apparently in a single generation.

The larva feeds from a silk tube in the base of grasses, in common with other members of the genus, apparently favouring *Festuca ovina* and *Poa pratensis* in other parts of Europe.

6270 *Agriphila poliellus* (TREITSCHKE, 1832)

1 record: [2008] – [2008]

This species is listed for Bulgaria by SLAMKA (2008), but no locality is available and so there is no distribution map in this present work. There is, apparently, a Bulgarian specimen of this species in the Rome Museum (A. ZILLI, pers. comm.), but I have not yet been able to examine it and confirmation is needed. LERAUT (2012) points out that in France this is a late season species which occurs in mountainous areas and is easily overlooked; the same may well apply to areas of Bulgaria.

The larva feeds at the base of grasses, in common with others species of *Agriphila*.

6272 *Agriphila tersella* (LEDERER, 1855)

4 records: [1967] – [1985]

The Bulgarian records of this species are old, few and from only three localities at Chepan (GANEV, 1985a), Primorsko (GANEV, 1985a) and Nessebar (SOFFNER, 1967; GANEV, 1985a). SLAMKA (2008) regards it as a halophilic species of saline biotopes and sandy habitats.

The larval pabulum is not known.

***Agriphila geniculea* (HAWORTH), *A. tolli* (BŁESZYŃSKI) and *Agriphila dalmatinellus* (HAMPSON)**

These three species of *Agriphila* form a sub-group that is characterised by the elongated costal process of the valva in the male genitalia. Only the last two are reliably recorded in Bulgaria, however; *A. geniculea* is widely reported in the literature, but where it has been possible to examine voucher specimens, all were shown to be misidentified examples, usually of *A. tolli*. Modern survey (since the year 2000) has failed to produce any valid specimens of *A. geniculea*. According to FAZEKAS (2009) *A. geniculea* is an expansive Atlantic-Mediterranean species and *A. tolli* is a typical element of the Ponto Mediterranean fauna. The species pair evolved from a single monophyletic unit and the two species are true geo-ecological vicariants (FAZEKAS, 1995), which are not thought to occur sympatrically in the Balkan Peninsula. Personal investigations have revealed that a consistent distinguishing feature seems to be the number and form of the cornuti in the male aedeagus, as demonstrated in Table 4.

Taxon	Usual Number of cornuti*	Form of the cornuti (vesica not everted)	Number of specimens examined
Agriphila geniculea geniculea	8	Stout, distinctly curved, in a compact, comb-like, group	20
Agriphila geniculea andalusiella	7	Stout, very strongly curved, in a compact, comb-like, group	6
Agriphila tolli tolli	11	Long and thin, almost straight. In a group, but appearing more loosely arranged.	27
Agriphila dalmatinella	10	In a loose group, with the five towards the tip of the aedeagus stout and the five towards the base smaller and finer.	4

*the cornuti are in part deciduous and so may number fewer in some specimens; occasional specimens may have one or two extra cornuti.

Table 4: Number and style of cornuti in the aedeagus of some *Agriphila* species.

Female genitalia of *A. geniculea* and *A. dalmatinellus* are illustrated by Błeszyński (1965); the female genital structures of *A. geniculea* and *A. tolli* appear identical and reliable separation of worn examples may not be possible.

[6275 *Agriphila geniculea* (Haworth, [1811])]
Erroneously recorded. Bulgarian specimens attributed to this taxon are referable to *Agriphila tolli* (Błeszyński)]

6276 *Agriphila tolli tolli* Błeszyński 1952

48 records: 1925 – 2014

According to Fazekas (2009) Balkan examples of *A. tolli* are all referable to ssp. *tolli* Błeszyński; this includes material from European Turkey. The subspecies *beieri* Błeszyński is distributed in Asian Turkey eastwards, and ssp. *pelsonius* Fazekas is found in Hungary and bordering areas of Austria, Serbia, Romania and the southern part of the former Czechoslovakia. The taxonomic status of *beieri* is questioned by Slamka (2008). *A. tolli tolli* is a widespread and often very common moth in Bulgaria and is well represented in light trap samples across the country. Dated records show an adult flight period from early August (11th) to early October (6th) with no breaks and showing a peak in the second half of August and the first half of September.

The larva is apparently unknown.

6277 *Agriphila dalmatinella* (Hampson, 1900)

14 records: [1985] – 2013

The European distribution of this species reflects its specific epithet, involving the countries of the Dalmatian seaboard in the former Yugoslavia and Greece. The moth not uncommon at rather few localities in the south-west of Bulgaria whilst the four reports shown in the distribution map towards the Black Sea coast area appear to fall on the extreme limit of the likely European distribution (*vide* map in Slamka, 2008) and so warrant specific mention. Two are inland; two others are at seaside locations at the Belia Coast camp site between Balchik and Kavarna, 1♀ 23.IX.1995, (Goater, 1996; Beshkov & Goater, 2000) and at Dolni Chiflik, coastal sand dunes and associated marshy woodland, several including 5♂♂, 16.IX.2010, leg. C. W. Plant, A. J. Pickles, S. Beshkov & B. Zlatkov. Adults fly in Bulgaria from late August (22nd) to the end of September (30th).

The larva is unknown.

The genus *Catoptria*
Six species of *Catoptria*, namely *C. permutatella* (Herrich-Schäffer), *C. gozmanyi* Błeszyński, *C. casperella* Ganev, *C. myella* Hübner, *C. europaeica* Błeszyński and *C. osthelderi* (De Lattin), cannot be separated reliably without examination of the genitalia and this should be borne in mind when interpreting older records. Good quality genitalia illustrations are available in Slamka (2008).

6280 *Catoptria permutatella* (Herrich-Schäffer, [1848])

11 record: 1957 – 2012

The Bulgarian distribution of this species seems to be restricted to the Stara Planina and Rila Mountain ranges. Confirmed records are from Etropol Cloister, Stara Planina Mountains, 1♂ leg. Lukov, 27.VII.1971 (Ganev, 1984; 1985a); Haidushka pesen, Stara Planina Mountains, 1♂ leg. Raitchev, 29.VI.1979 (Ganev, 1984; 1985a); Stara Planina, two specimens dated 17.VI.1957 & 19.VI.1957, without further locality data or collector name in coll. NMNHS; Golyamo Belovo, Yadentsi, 873 m., 1♀ 15.VII.2011, leg. S. Beshkov; Pleven Chalet, 2♂ 12.VIII.2012, leg. S. Beshkov and Ribaritsa, 1♀, 10.III.2012, leg. S. Beshkov. Ganev (1985a) also lists Pas Tvarditza, Ribaritza, near Teteven and Lakatnik, all in the Stara Planina, but without any further detail; it is not known if these specimens were critically examined. The publication in which they are mentioned post-dates Ganev's own description of *C. casperella*, but Ganev (1983c) actually defined *casperella* as a subspecies of *gozmanyi* and it was not raised to full species status until later (Bassi, 1999). It is desirable to trace and examine any specimens. Specimens collected above the Rila Monastery at 1900 m., 13.VI.1986, leg & coll. Cs. Szabóky may also not have been critically examined.

The larva is associated with mosses (Bryophyta) and hibernates amongst the foodplant before pupating the following year.

6281 *Catoptria gozmanyi* Błeszyński, 1956 (*nec* Slivov, 1981)

9 records: 1960 – 2010

See discussion under the next species. *C. gozmanyi* is evidently a rare species in Bulgaria and is restricted to the west. All records are based on critically examined specimens: Bunkera (Vitosha Mountain), 1♂, 18.VIII.1979 (Ganev, 1984);

Borovets (Rila Mountain), 1♂ leg. Botcharov, 15.VII.1971 (Ganev, 1984); Panitchishte (Rila Mountain), 2♂♂ 1♀, 17.VII.1980 (Ganev, 1984); Zlatnite Mostove (Vitosha Mountain), 2♂♂ 1♀ leg. Botcharov, 16.VII.1960 (Ganev, 1984) – these records are included in Slamka (2008). More recently there are just two records: Belogradchik, 2♂♂, 13.VII.2009, leg. S. Beshkov, in coll. C. W. Plant and Pirin Mountains at Belmekea, 2♂♂1♀, 4.VIII.2010, leg. S. Beshkov. The few records available indicate a flight period from mid July (13th) to mid August (18th)'

The larva is unknown.

—— ***Catoptria casperella* Ganev, 1983**

13 records: 1980 – 2015

Formerly regarded as a subspecies of *C. gozmanyi*, *C. casperella* was raised to species status by Bassi (1999) from Bulgarian material collected at Chepelare. In Bulgaria, it seems to be restricted to the southern mountains, but outside this country it is reported from mountains in Serbia and Greece and so is possibly more widely distributed across the Balkan Peninsula in suitable habitat than currently known. It is a montane species. Slamka (2008) noted that it had been found between 1400 and 1700 m.; Bassi (1999) notes it at 1400 – 1600 m. in neighbouring southern Serbia. I am not aware of any records made lower than 1400 m.. All accepted records are based on critically examined specimens: Chepelare, Rhodopes Mountains, 20.VIII.1980, 1♂ (holotypus) leg, Ganev, in coll. Ganev & 1-5.VII.1981, 1♂ (paratypus), leg. Ganev, in coll. Naturhistorisches Museum Wien, Austria, (Bassi, 1999). Elsewhere in the Rhodopes Mountains Ganev (1985a) lists Rosen and Shiroka Láka village, 2♂♂, 5.VIII.1982. Earlier (Ganev, 1984) he mentions it for the Pirin Mountains at Begovitsa, 1♂, 17.VIII.1982 and this is presumably the same as "Pirin Mountains, to 1800 m." in Ganev (1985a). It has been taken more recently in the Pirin Mountains at Orelyak, 1900 m., 11♂♂ 3♀♀ 6.VIII.2010, leg. S. Beshkov, in coll. C. W. Plant and in the Rhodopes between Voynovo and Strelkovo, 1♂, 24.VII.2010, leg. S. Beshkov. Ganev (1985a) also mentions Slavyanka (as Alibotush) Mountain.

Adults have been recorded in Bulgaria from the start of July (1st) to late August (20th), but the larva is unknown.

6282 ***Catoptria myella* (Hübner, 1796)**
= *gozmanyi* Slivov, 1981, nec Błeszyński, 1956

13 records: 1933 – 2014

This is apparently a rare species in Bulgaria, but may be under-recorded because it favours higher altitudes. Accepted records are based on genitalia examination, and it is assumed that examples reported by Ganev for which the sex is stated were dissected by him. Accepted records are: West Rhodopes at Kostenets, 1200 m., 18.VII.1933, leg. Tuleshkov, in coll. NMNHS; Vitosha Mountain at Zlatnite Mostovi, 1♂ 18.VII.1969, leg. Botcharov, (Ganev, 1984); Panitchishte, Rila Mountains, 1♂, 17.VII.1980 (Ganev, 1984); Borovets, Rila Mountains (Ganev, 1985a) – presumably the reference to "Rila Mountains, to 1500 m." in the same paper refers to further specimens?; Bunkera, Vitosha Mountain, 1♂, 13.VII.1979 (Ganev, 1984; 1985a); Izgrev, Rhodopes Mountains, 2♂♂ 1♀, 31.VII.1982 (Ganev, 1984); Rosen Pass, Rhodopes Mountains, 1♂, 30.VII.1982 (Ganev, 1984); Progled village, Rhodopes Mountains, 2♂♂, 4.VIII.1982 (Ganev, 1984) and Chepelare, Rhodopes Mountains, 1♂1♀, 20.VIII.1980 (Ganev, 1984). a further record in Ganev (1985a) from Dragalevski, in the Vitosha Mountains lacks any detail and so must be rejected unless a specimen becomes available. The report from the Iskar Gorge at Lakatnik, 1♂ at light on 12.VI.1966 (Slivov, 1970) is also temporarily rejected because the record pre-dates the recognition of *casperella* as a valid species: it is desirable to locate and examine the specimen. Data from the accepted records suggests an adult flight period from mid July (13th) to mid August (20th); the record from Lakatnik, if proved correct, would extend the flight period from mid June.

The larva is associated with mosses (Bryophyta) growing on stones (Slamka, 2008; Leraut, 2012).

6283 ***Catoptria osthelderi* (de Lattin, 1950)**

5 records: 1935 – 1980

Three reports from the Rila Mountains "Borovets, July, det. de Lattin" (Soffner, 1967), "Borovets, Rila Mountains" (Ganev, 1985a) and "Rila Mountains at 1300 m." (Slamka, 2008) are likely to relate to a single original report, although it is probable that the species might be encountered over a reasonably wide area of the Rila mountain range. Elsewhere in the western section of the country there is a record from Ossogovo, 5♂♂ 2♀♀, 30.VII.1980 (Ganev, 1984; 1985a). In quite different, lowland habitat, there is a record from the Balchik area, ♂♂ on 21.VII.1935 (Popescu-Gorj, 1964) to which the reference to Balchik in Ganev (1985a) presumably also refers. According to Slamka (2008) the insect occurs both in mountains and sandy or limestone lowland localities. The apparently disjunct distribution of the Bulgarian populations of this moth requires investigation.

The larva is associated with mosses (Bryophyta) (Slamka, 2008).

[6285 *Catoptria pyramidella* (Treitschke, 1832)

Recorded for Bulgaria, but without locality data, by Drenowski (1929). There are apparently no records since then. Ganev (1985a) comments that the range expansion of this species is similar to that of *C. radiella* (Hübner) which he regarded as "common in the alps and in Ossogovo, Bulgaria". Slamka (2008) notes that "only one record is known from Bulgaria but its locality is unknown", citing Ganev (1985a) as his source. I have not been able to locate a voucher specimen and a consideration of the otherwise rather restricted distribution of this species in Europe gives me cause to wonder if the specimen was correctly identified. That said, it is not impossible that alpine species should be in the mountains of the Bulgarian/Serbian border, but until such time as the specimen can be found and dissected, I remain sceptical about this species having a place in the Bulgarian fauna. For the time being, it is not admitted to the list. As with others of the genus, it is associated with mosses (Bryophyta).]

6289 *Catoptria luctiferella* (Hübner, [1813])

2 records: [1985] – 1932

As with the previous species, *C. luctiferella* is more or less restricted to the Alps although it also occurs in the Apennine range of Italy and the Carpathian range at Spanno Pole in the Pirin Mountains, where is was noted on dates between 14th and 22nd July 1933, leg. Reisser (Reisser & Züllich, 1933). Although it has, apparently, not been seen in Bulgaria since that date, it might nevertheless be worth searching for in appropriate place. According to Slamka (2008) is also present in the Rila mountain range.

Various texts suggest that the larvae feeds on mosses (Bryophyta) or grasses (Poaceae), from which it may be inferred that there is an opportunity for field work on the part of anyone interested.

***Catoptria acutangulella* (Herrich-Schäffer) and *Catoptria olympica* Ganev**

Slamka (2008) treats these two taxa as separate species on the basis of small differences in the genitalia. However, Leraut (2012) synonymises the pair, along with *casalei* Bassi, under *acutangulella* stating that they differ from each other only by differences in the male genitalia which are, he adds, "in any case variable in the genus *Catoptria*". There is neither supporting text nor comparative illustrative material. The present author has not seen either *olympica* or *casalei* and so is unable to form an educated opinion, but given the apparent inadequacy of the combination prefers to retain the two as distinct species until such time as a proper taxonomic examination has been undertaken and properly reported.

6291 *Catoptria acutangulella macedonica* Osthelder, 1951

1 record: [1985] – [1985]

The only available Bulgarian record is from Trigrad, at 1300 m. in the Rhodopes Mountains, (Ganev, 1985a). The same record is repeated in Slamka (2008) The adult flight time is given as July by Ganev (1985a), implying that he may have held further data that has not been published or that he was referring to data from another country, perhaps Greece (see species account for *C. olympica*, below).

The larva is unknown.

6292 *Catoptria olympica* Ganev, 1983

1 record: [1985] – [1985]

The only Bulgarian record is from Belasitsa Mountain, a single specimen only (Ganev, 1985a). The adult flight time is given as July by Ganev (1985a) but may not relate to this specimen; he described the species from Mount Olympus in Greece and in NMNHS are 52 paratypes labelled "Olymp. Geb., 2100 m., 21.VII.1937, leg. Tuleshkov" and some others labelled "26.VII.1937, 1750 m.".

The larva is unknown.

6294 *Catoptria radiella* (Hübner, [1813])

1 record: [1985] – [1985]

The nominotypical subspecies is evidently restricted to the Alps. Elsewhere, *C. radiella* is found in three widely separated geographical areas to the east of the Alps, in the Tatras Mountains of Slovakia, in the Transylvanian mountains of Romania and in Bulgaria. The Bulgarian population appears to be restricted to the Osogovo Mountains in the west of the country and is referable to ssp. *jordankiella* Ganev, 1981, which is slightly larger and shows small differences in the genitalia. According to Ganev (1985a) it is only found above 1650 m.; the more recent work of Slamka (2008) records it as being

found between 900 and 3160 m. in Europe as a whole. The flight period given by GANEV (1985a) as June to August may not be based on Bulgarian data.

The larva is unknown.

6299 ***Catoptria mytilella*** **(HÜBNER, [1805])**

31 records: 1930 – 2015

Examples resident in the southern Balkans (Bulgaria and Greece, at least) are referable to ssp. *hermesi* GANEV, for which the type locality is the volcanic hill at Kozhuh, near Petrich. The subspecies is distinguished by slightly longer and narrower white markings; the differences can appear to be somewhat fine in individual specimens, but when examined against a series of set specimens the validity is apparent. The outer white line of the forewing is usually very slight and the inexperienced might easily dismiss examples as belonging to the far more abundant *C. pinella* LINNAEUS, especially if they are slightly worn. *C. mytilella* is a fairly widespread moth in Bulgaria, found in the southern mountains, the central Stara Planina and the northern area in the area around Ruse. It has been found on dry, exposed rocky meadows at Lakatnik, 1♀ 17.VII.1964 and from an area of young *Pinus* plantation at Cherepish, 25.VIII.1965, 1♂, both records in SLIVOV (1970). A record from Krumovgrad, 22.VII.1968, 1♂ given in TULESHKOV& SLIVOV (1975) is later incorrectly cited 22.VII.1967 in BESHKOV & LANGOUROV (2004); the record for Krumovgrad (GANEV, 1985a) refers to the same. The records in the database indicate a flight period from mid July (15th) to late August (28th) with a single earlier record outside this range at Kokalyane (Vitosha Mountains) 15.VI.2013. GANEV (1985a) states July to September.

The larva is unknown.

6301 ***Catoptria pinella*** **(LINNAEUS, 1758)**

87 records: 1910 – 2015

GANEV (1985a) regarded this species as present "throughout Bulgaria up to 1800 m."; at 2015 it is a more or less ubiquitous species, widespread and abundant in all areas of the country. The only hint that this may not always have been the case lies in the remark in TULESHKOV& SLIVOV (1975), referring to the Rhodopes Mountains "reported by DRENOWSKI (1925) from the plain and the mountain belt". There is an inference here that in 1975 there had been no report since 1925. Interestingly, BURESCH (1908) records it from Vitosha and Kniajevo, during July, noting that "In higher altitudes they are darker and smaller than those lower down". It is difficult to countenance the suggestion that such an experienced lepidopterist could have overlooked a different species, but the description also fits, quite easily, a misidentification of *C. mytilella* (HÜBNER) for which there are no confirmed Bulgarian records until 1930. The adults are on the wing in Bulgaria from early June (10th) to mid September (18th) with a single outlier in late October (22nd). No breaks are discernible, and the moth appears to fly in a single protracted generation, although there are significantly higher numbers in the last week of July and throughout August.

The larva feeds from within a silk tunnel on the roots of the grass *Deschampsia cespitosa*, of the cotton-sedge *Eriophorum vaginatum* and also amongst un-named mosses (Bryophyta) (Slamka, 2008; Leraut, 2012). It seems very likely that other grasses (Poaceae) are also utilised.

6304 ***Catoptria margaritella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

1 record: [1985] – [1985]

This is primarily a species of northern and central areas of Europe and is rare in the warmer southern zone, which includes the Balkan Peninsula. There is just a single Bulgarian record, from Slavyanka Mountain [as Alibotush Mountain] given in GANEV (1985a) without further detail other than a comment that it flies in July. It is a distinctive species that cannot be mistaken and GANEV was thoroughly experienced with the Crambinae. Nevertheless, it would be useful to locate a specimen and record the Institution where it is preserved. More interesting by far, of course, would be to look for further examples at Slavyanka and elsewhere. *C. margaritella* is a species of open upland areas, especially moorland and particularly where these are damp.

The larva is associated with mosses (Bryophyta), but data on the individual species used is apparently lacking.

6306 ***Catoptria fulgidella*** **(HÜBNER, [1813])**

3 records: 1980 – [1985]

This is a lowland species, not normally associated with higher altitudes and so the presence of the word "mountains" in the list of published localities should be taken as an indication of a general area rather than of altitude. GANEV (1984), lists

Ossogovo, 1♂, 2.VII.1980, Bekbunar, also in the Ossogovo Mountains, 1♂, 31.VII.1980 and later (Ganev, 1985a), he adds Alibotush [now called Slavyanka] Mountains. The last is without date, but since the species is not mentioned in the older literature and since Ganev was quite literally the only person looking at these moths in Bulgaria at the time, it can be inferred that the Slavyanka report was made after he wrote the 1984 paper and before submission of that for 1985. This deduction may also have bearing on the record of *C. margaritella* mentioned above.

Elsewhere, the larvae feeds on the roots of *Carex* and also of *Gnaphalium* (Błeszyński, 1965).

[6311 *Catoptria laevigatella* (Lederer, 1870)

This species was recorded for Bulgaria by Drenowski (1929), without locality or other data. This appears to be the only European record of what is essentially a high mountain species found in Transcaucasia, eastern parts of Asiatic Turkey, Syria and eastwards across Asia. The record is treated as "probably doubtful" by Slamka (2008) and "uncertain" by Leraut (2012). In the view of the present author the occurrence is highly unlikely to be correct. It is impossible to know, in the absence of locality data, what the species actually was, but *C. languidella* Zeller, or even a small example of *C. biformella* Rebel are perhaps the most likely candidates. The record is hereby formally deleted from the Bulgarian, and hence European, fauna.]

6312 *Catoptria languidella* (Zeller, 1863)

9 records: [1903] – [1985]

Within Europe, this is a species of higher altitudes that is found in the Alps, the Apennines of northern Italy, parts of Austria and the Carpathian Mountains in the Balkan Peninsula; it is unfortunate that published records are accompanied by so little associated data relating to dates or specific localities. Rebel (1903) records it from Rila, between 1600-2000 m., commenting that the specimens were like those from Dalmatia, the largest having a wingspan of 21.5 mm and with a strong yellowish leading edge to the wing. Elsewhere from the south and west, it is mentioned for Ossogovo Mountains "in the sub-Alpine zone", Slavyanka [as Alibotush] Mountains from 1200 to 1800 m., and the Pirin Mountains (Ganev, 1985a). For the central zone, Drenowski (1925) adds the Stara Planina Mountains between 1700 and 2000 m. (repeated in Ganev, 1985a). Ganev (1985a) notes the flight period as July, but fails to provide supporting data; for Europe as a whole, Slamka (2008) records June to August. The only evidence available at present are the data on a label on a pinned specimen in NMNHS, which reads "12.viii"; regrettably, the label is otherwise illegible, but the associated material is all of Bulgarian origin.

The larva is unknown.

6313 *Catoptria ciliciella* (Rebel, 1893)

3 records: [1985] – [1985]

Within Europe, this species appears to occur only in Bulgaria, but it extends from Asiatic Turkey and Transcaucasia eastwards across Asia Minor. The Bulgarian, and hence European, records are from the Vitosha Mountains in the vicinity of Sofia, the Rhodopes Mountains at Trigrad and from the Stara Planina near Sliven (Ganev, 1985a). Neither of the two recent reviews of Crambidae (Slamka, 2008; Leraut, 2012) add to this list. Probably a high altitude species, the type locality is at 2400 m.. Adults have been noted from July and August (Leraut, 2012), though it is unclear if this is based on Bulgarian material.

The female appears to be unknown, as do the pre-imaginal stages.

6314 *Catoptria falsella* ([Denis & Schiffermüller], 1775)

84 records: [1903] – 2015

A widespread, perhaps ubiquitous species, which is usually abundant. It is found at altitudes up to 2000 m. in the southern mountains (Drenowski, 1925 and current data), but is equally at home at sea level on the Black Sea coast. Buresch (1908) noted that *"Some of those I have from Kniajevo are smaller than those from Rila and the Rhodopes – front wings 8mm long. Flies in July"*. From the north-west, Tuleshkov (1932) notes it near Belogradchik, 7.VII.1931. The database indicates a flight period from early June (10th) to mid September (14th) with occasional examples flying later in sheltered sites, with the latest on 6.XI.2010 in the Kresna Gorge. Moths are on the wing continuously within the main period, but three small peaks are just discernible in the last week of July, second and third weeks of August and the second week of September. This might suggest three generations within the summer period, or it may simply reflect the weather and other light trapping conditions.

The larva feeds from a silk tube on mosses (Bryophyta). Recorded species include *Tortula intermedia*, *T. muralis* and *Brachythecium rutabulum* (Slamka, 2008). There may be a preference for mosses growing on vertical, or at least sloping, surfaces. The larvae over-winter in their tubes and pupate in the spring.

6315 ***Catoptria confusella*** **(Staudinger, 1881)**

60 records: 1910 – 2015

This is another widespread and usually abundant species in Bulgaria. In Europe it appears confined to the central area and the Balkans where it flies with *C. falsella*. Separation of very worn examples might warrant a look at the genitalia, though in most cases separation is possible without recourse to such action. Available records show the species thriving up to an altitude of 1600 m., but there is no particular reason to suppose that it will not extend as high as *C. falsella*. It starts to fly slightly later than *C. falsella*, with the first adults appearing in early July (11th) and continues later, persisting in number to the end of October (26th) with a single November report on 6th.

The larvae feed on undefined species of moss (Bryophyta); most authors who mention it at all agree that mosses on the ground are favoured, rather than those on trees or other vertical surfaces.

6318 ***Catoptria verella*** **(Zincken, 1817)**

6 records: 1974 – 2010

This central and northern European moth is scarce in the Balkans; in Bulgaria there are only six records of which four at least can be positively attributed to a period of primary immigration activity by various other species of Lepidoptera. The conclusion is that *C. verella* is a rare immigrant species in Bulgaria. The records are as follows: Strandzha Mountains, Kacul, 28.VI.1974, leg. Slivov, in coll. NMNHS. The reference to Strandzha Mountains in Ganev (1985a) probably refers to the same specimen; Dolni Chiflik coastal sand dunes, 13.VIII.2009, leg., C. W. Plant, S. Beshkov & B. Zlatkov; Balchik area, coastal cliff ledges with ruderal flora and scrub, 14.VIII.2009, leg., C. W. Plant, S. Beshkov & B. Zlatkov; Dolni Chiflik area, *Fraxinus*-dominated woodland near mouth of Kamchia River, 16.VIII.2009, leg., C. W. Plant, S. Beshkov & B. Zlatkov; Dyavolska Reka River marsh, 1♂ 13.VIII.2010, leg. B. Zlatkov & O. Sivilov and between Burgas and Chernomorets at Otmanli, 1♂ 11.IX.2010, leg. S. Beshkov & B. Zlatkov.

Elsewhere, the larvae feed on undefined moss (Bryophyta) both on the ground and on the lower reaches of trees or other vertical surfaces.

6319 ***Catoptria petrificella*** **(Hübner, 1796)**
= *coulonellus* Duponchel, 1836

1 record: [1896] – [1896]

Rebel (1903) writes "*Haberhauer schickte ein Exemplar aus dem Balkan bei Sliven, wahrscheinlich aus dem Kutelka gebiete stammend*" [Haberhauer sent a specimen from the Balkans at Sliven, probably originating from the Kutelka area]. General investigations of the activities of Haberhauer suggest that this specimen was collected in 1896, although this cannot be proven unless a labelled specimen is discovered. Various publications record the specimen as a male, It is unclear whether or not the reference to the Stara Planina, at 800 m. (Drenowski, 1925) refers to the same or a different report. As far as I am aware, there are no other records from Bulgaria.

The larva is apparently unknown.

6322 ***Catoptria lythargyrella*** **(Hübner, 1796)**

20 records: 1904 – 2011

A fairly widespread and locally common insect that in Europe as a whole, is equally at home on dry, grassy and usually well-drained lowland slopes as it is on mountain meadows. The available Bulgarian records show that here it extends up to 1600 m. altitude. It is present in the Belasitsa, Ossogovo, Pirin, Rhodopes, Rila and Vitosha Mountains in the south as well as in the Stara Planina. Ganev (1985a) suggests a flight period of July to September; current data extends from early June (8th) to late August (30th).

The larva feeds on grasses (Leraut, 2012). According to Slamka (2008) it resides in a vertically-arranged silk tube. Fragments of grass are chewed off the plant and returned to the tube to be eaten. The larva hibernates and feeds again in the following year, not pupating until July.

6323 ***Catoptria domaviella* (REBEL, 1904)**
= *domaniellus* REBEL *sensu* DRENOWSKI, 1925

4 records: [1908] – [1985]

This species is found in the northern parts of Vitosha in June and July (BURESCH (1908). DRENOWSKI (1925) records it (as *domaniellus* Rbl.), between 1000 and 1600 m. in the Vitosha Mountains. The report from Vitosha Mountain in GANEV (1985a) probably relates to a specimen in coll. NMNHS labelled "Vitos… [label damaged], 27.VIII.19[53]" – the year appears to post-date the DRENOWSKI data and in addition a note in the storage box indicates that GANEV had seen this specimen. It has been dissected, but the moth is not labelled with the sex and the slide is not currently available. *C. domaviella* is also recorded from the Rila Mountains (GANEV, 1985a) who notes activity by the adults in July and August. Outside Bulgaria, the species is known in Europe from Herzegovina, Macedonia, Montenegro and Romania and then eastwards across southern Russia.

6325 ***Catoptria biformella* REBEL, 1893**

45 records: 1833 – 2015

In Europe, *C. biformella* is restricted to the southern Balkans and is found only in mountains between 1400 and 2900 m. altitude. The nomino-typical subspecies is not present in Bulgaria (or Europe), but occurs in Transcaucasia. In Bulgaria, three subspecies have been described, with ssp. *majorella* (DRENOWSKI, 1925) restricted to the Stara Planina, ssp. *klimeschi* GANEV, 1983 confined to the Pirin Mountains and ssp. *roesleri* GANEV, 1983 rather more generally distributed in the south-western mountains. LERAUT (2012) recognises ssp. *majorella* but summarily dismisses the remaining two as "other minor 'ssp.' later unjustifiably described from this country". Insufficient material of the taxa *majorella* and *klimeschi* has been examined to form a valid opinion as to whether they are subspecies of just forms, and so for the time being the three are retained as subspecies so that individual specimens can be allocated accurately to individual records in any future analysis.

6325 ***Catoptria biformella roesleri* GANEV, 1983**

23 records: 1902 – 2014

At present, known only from south-west Bulgaria. Type locality: Skakavitsa, Rila Mountains, 1870 m.. Material from Albania still requires examination but given the continuity of montane habitat it would not be surprising to discover that this, too, conforms to ssp. *roesleri*. In NMNHS there are 15 specimens, all labelled as paratypes, as follows: Rhodopes, Kostenets, 2400 m., 1.VII.1912, leg. BURESCH (x 8); Rhodopes, Kostenets, 2300 m., 1.VII.1912, leg. BURESCH (x 2); Popova shapka, Rila Mts., 11.VII.1926 (x2); Rila, Musala, 23.IV.[Illegible year]; and Vitosha Mts, Cherni vrah, 8.VII.[illegible year]. It is a widespread but localised species of higher altitudes in the Western Rhodopes, Rila, Slavyanka and Vitosha Mountain ranges and other high ground in the south-west. REBEL (1903), writes [in German] "To my great surprise, I found a *Crambus* species in Rila, at Eleni vrah, 1800 m., 25th July 1902, which I immediately realised was the *Crambus biformellus* described by me from Armenia. My search for the half-winged female was, unfortunately, unsuccessful". Shortly after, BURESCH (1908) reports that "This interesting species has been caught by Dr REBEL. It is found in the Vitosha Mountains above 1500 m.. Specimens from Vitosha are paler and bigger than those from Rila, with fore wings up to 16mm long". Later, DRENOWSKI (1925) reports *C. biformella* from "Rila, Vitosha, Pirin and Rhodopes Mountains in the alpine and sub-alpine zones between 1800 and 2924 m.". The Pirin Mountains material must belong to ssp. *klimeschi* GANEV, discussed below. The reports for the Rila Mountains and Vitosha, in the alpine and sub-alpine zones (GANEV, 1985 and repeated in SLAMKA, 2008) refer to this DRENOWSKI (1925) data. The most recent available records of this subspecies are from above the Rila Mountains at Ribni Ezera Chalet, 2115 m., 16.VII.2010, leg. B. ZLATKOV, the Granchar Chalet area, 6.VIII.2013, leg. O. KARSHOLT, and at the summit of Kongur Mountain, 27.VIII.2014, leg. BESHKOV, but there is no reason to suppose that it does not remain present at the various other localities reported over the years.

6326 ***Catoptria biformella majorella* (DRENOWSKI, 1925)**

9 records: 1909 – 2014

Probably endemic to the Stara Planina. A male, 1911, leg. DRENOWSKI and one labelled as female (abdomen absent at April 2011), 8.VII.1911, leg. DRENOWSKI taken at Central Balkan, 2100 m., are present in coll. NMNHS. These might be the same as those from "Stara Planina, between 1800 and 2375 m." (DRENOWSKI, 1925). The reports for Stara Planina Mountains in GANEV (1985a) and in SLAMKA (2008) might refer to these same DRENOWSKI (1925) data or to material collected near Belogradchik on 9.VII.1931 (TULESHKOV, 1932). DRENOWSKI also collected this taxon at Kalofer, 2000 m., 1♂ 1♀ 24.VII.1909. More recently, it has been taken at light in the Central Stara Planina mountains, below the summit of Botev, at 2015 m., 1♂ 1♀ 16.VII.2009, leg. S. BESHKOV, and again in the same area on 6.VII.2014.

…. ***Catoptria biformella klimeschi* Ganev, 1983**

14 records: 1833 – 2015

Apparently endemic to the Pirin Mountains. Type locality: Vihren, at 2900 m. (Slamka, 2008). The following paratype material has been examined in NMNHS: Pirin, Bansko, El-Tepe, 2200 m., 24.VI.1914 (x 4); Pirin, Papas Giol [= Popovo Lake], (2400 m.), 16.VII.1915 leg. Buresch (x 3); Pirin from 1800 to 2924 m., undated (Drenowski, 1925) and Pirin, Scheltan Dere bei Kresna [Oshtavska River near Kresna], 16.VIII.1931 (x 3). Other material in the museum is Pirin Mountains, 9.VII.1933, leg. Thurner, Pirin Mountains, Spanno Pole, 15.VII.1933, leg. H. Reisser and Pirin, leg. Tuleshkov, 7.VIII.1940 (x 3) & 9.VIII.1940 (x 7). Other available records are: Banderishko Ribno Lake at 2200 m., 1♂ 18.VII.2010, leg. B. Zlatkov, Vihren, 1800 m., 1♂ 10.VII.1976, leg. B. Goater, Orelyak, 1♂1♀ 23.VIII.2014 & 1♂ 29.VIII.2014, leg. Beshkov and Vihren, 2700 m., 1♀ 27.II.2015, leg. V. Gashtarov.

6330 ***Mesocrambus candiellus* (Herrich-Schäffer, [1848])**

10 records: [1967] – [1985]

This is a species of dry, usually sandy habitats in Europe and further east on steppes. Rather little steppe habitat remains in Bulgaria today; it is mostly confined to the Kaliakra Peninsula wind farm area from where the moth is not yet recorded. It was perhaps more widespread in the past and so may explain the undated reports for "July to September" at Nessebar (Soffner, 1967; Ganev, 1985a). Other undated records in the literature are for the Pirin Mountains, Sandanski, Ribnik (in the Ograzden Mountains) and Slanchev Briag [= Sunny Beach] (Ganev, 1985a); the latter only a few kilometres south of "Sunny Beach". The only dated reports are from the Petrich area at Kozhuh, 2♀, 10.VI.1981 & 2♂♂ 1♀, 1.IX.1982 (Ganev, 1984; 1985a).

The larva is unknown.

6333 ***Metacrambus carectellus* (Zeller, 1847) bon. comb.**

7 records: 1911 – 2012

Leraut (2012) synonymised the genus *Metacrambus* Błeszyński with *Mesocrambus* Błeszyński, the latter having page priority, on the basis of his examination of the palpi, venation and genitalia. Sketches of the genitalia were presented, but not of the other features mentioned nor was there any descriptive text to inform the reader which particular features of the genitalia were regarded as relevant. My own visual appraisal of various published drawings of the genitalia of the type species of each genus (*Mesocrambus candiellus* H.- S. and *Metacrambus carectellus* Zeller) leaves me less than convinced – specifically, the shape of the uncus and the form and arrangement of the costal processes of the valva differ markedly. The genus *Metacrambus* is here resurrected, as a minimum to accommodate the taxon *carectellus*. It should be emphasised, however, that I have not examined any type material.

M. carectellus is evidently rare in south-eastern Europe and Bulgaria is no exception. Two look-alike species, *M. jugaraicae* Błeszyński and *M. marabut* Błeszyński are not particularly expected in the Balkans, but the three most recent reports of *M. carectellus*, below, have nevertheless been confirmed by genitalia examination. The records are: Burgas (Ganev, 1985a), almost certainly referring to the single specimen in the collection at NMNHS and labelled "Burgas, 6.VIII.1911"; Balchik area, 1♂ 25.VI.1930 (Popescu-Gorj, 1964), perhaps the source of the Balchik area record mapped by Slamka (2008); Nessebar, (Soffner, 1967; Ganev, 1985a); Primorsko, 1♂ 30.VI.2009, leg. B. Zlatkov & R. Bekchiev; East Rhodopes Mountains, Arda River between Madzharovo & Borislavtsi, 1♂ 20.VII.2011, leg. S. Beshkov; Kamchia, 1♂ 25.VII.2011, leg. B. Zlatkov & O. Sivilov and Rezovo, on the coast, 1♂ 29.VII.2012, leg. S. Beshkov.

The larva is associated with unspecified grasses (Poaceae).

6340 ***Xanthocrambus saxonellus* (Zincken, 1821)**

46 records: 1903 – 2015

Records of "*Xanthocrambus saxonellus f. carectellus*" from the Black Sea coast (e.g., Popescu-Gorj, 1964) result from a typographical error for f. *carentellus*. It is surely impossible for the two species *X. saxonellus* and *M. carectellus* to be confused. In any event, f. *carentellus* has been shown to represent nothing more than sun-bleached examples of the moth (Błeszyński, 1965). *X. saxonellus* was first mentioned for Bulgaria by Rebel (1903) from Sliven, who commented that it was "not uncommon, very consistent with Austrian examples". It is a fairly widespread and not uncommon species now in dry, open places in parts of the country, with adults flying from late May (25th) to late August (29th).

The larva is apparently unknown.

***Chrysocrambus cassentiniellus* (HERRICH-SCHÄFFER) and *Chrysocramboides craterella* (SCOPOLI)**
Various features are given in the literature for the separation of *C. cassentiniellus* and *C. craterella*; unfortunately, although most work in most cases, subsequent examination of the genitalia seems to suggest that none of the characters is 100% reliable for Bulgarian material. SLIVOV (1970) commented that he had found several specimens of *Chrysocrambus linetella* from many regions of the country in the collections of the Institute of Zoology, but all were misidentified as *Chrysocramboides craterella*. The confusion is illustrated by REBEL (1903), who notes under his discussion of *C. craterella* "The most widespread and most common *Crambus* species in Bulgaria. Sofia, Sliven, Shipka are known as sites (REBEL), also Burgas (REBEL). Examples from the latter locality also include the larger lighter variety of *cassentiellus* ZELLER, with wider stripes of the forewings". Records of *both* species should ideally be confirmed by examination of the genitalia; it should be noted that both species often fly together, in the same place at the same time of day. Any additional published records that pre-date SLIVOV (1970) and which may be discovered in the future will certainly require checking.

6344 ***Chrysocrambus cassentiniellus* (HERRICH-SCHÄFFER, [1848])**
= *Chrysocrambus linetella* (FABRICIUS, 1781)

43 records: [1903] – 2014.

Widely distributed across Bulgaria in dry, open places, from sea level up to altitude 1560 m., perhaps reaching a little higher, but seemingly absent from some popular higher-altitude trapping locations such as the Granchar Chalet and Orelyak in the Rila Mountains. Numbers are certainly greater at low altitude sites. Adults are on the wing from the end of May (29th) to the start of the fourth week of July (22nd) with one exceptionally early record from Nikopol on 30.IV.2012.

The larva is unknown, which is surprising for such a common species.

6348 ***Chrysocramboides craterella craterella* SCOPOLI, 1763**

34 records: [1903] – 2014

As with the last species, this too is widely distributed in well-drained, grass-dominated habitats across the country from sea level up to 1400 m.. However, although apparently able to thrive in both altitudinal extremes, there is a bias of both records and moth numbers of *C. craterella* in favour of higher ground, whilst *C. cassentiniellus* is more often than not the species encountered at lower altitudes. However, the size of the sample used to reach this conclusion is rather too small for this to be anything other than a theory that is, perhaps, worthy of investigation. Adults fly from early May (9th) to early July (5th), starting and finishing slightly ahead of *C. cassentiniellus* but overlapping significantly.

6350 ***Thisanotia chrysonuchella* (SCOPOLI, 1763)**

55 records: [1903] – 2014

This is another widespread and locally common member of the Bulgarian fauna that is associated with dry and open-aspect habitats, including flower-rich mountain slopes up to an altitude of 1550 m. and, as with *C. cassentiniellus*, perhaps reaching a little higher, but apparently absent from the popular higher-altitude trapping locations such as the Granchar Chalet and Orelyak. Adults appear fairly early, ahead of other crambids, with available records from the end of March (29th) to the end of May (26th) with small emergences after that date around mid June (12th to 15th). Both SLAMKA (2008) and LERAUT (2012) state April to July for the whole of Europe, although GANEV (1985a) records May to August – perhaps on the basis of Bulgarian data.

The larva feeds on the roots of grasses (Poaceae) from a silk tunnel, according to Slamka (2008) preferring *Festuca ovina* (not Bulgarian data).

6352 ***Pediasia fascelinella* (HÜBNER, [1803])**

2 records: 2010– 2011

DRENOWSKI (1929) records this species as Bulgarian without locality details. However, when including Bulgaria in his distribution map, SLAMKA (2008) regarded this as a "questionable or doubtful record". Given the difficulty of identification in an era when genitalia dissections were not performed, it seems wisest to dismiss this record unless a specimen can be located in a museum or elsewhere. More recently, however there are two confirmed records: a male was taken at light by myself on the Black Sea coast near the border with Romania at Durankulak, 14.IX.2010. At the Kaliakra Peninsula, also on the Black Sea Coast and not very far from Durankulak, another was collected on 21.VIII. 2011, leg. JUHÁSZ ISTVÁN, det. & in coll. Cs. SZABÓKY. SZABÓKY re-examined this specimen during February 2013 and confirmed that he is happy with his original identification. These are the only two Bulgarian records.

The larva in unknown in Bulgaria; elsewhere it feeds from September through to June amongst the roots of grasses, with reported genera including *Elytrigia*, *Corynephorus*, *Deschampsia* and *Aira*.

6353 ***Pediasia jucundella*** **(HERRICH-SCHÄFFER, 1848)**

10 records: 1911 – 2014

This is an eastern species which reaches the western limit of its Palaearctic distribution in Hungary and the Balkans; to the east it extends across the entire area of Russia and as far south as Transcaucasia. However, although it appears to be widespread in Hungary (SZABÓKY et al., 2002), it is extremely local and rare in Bulgaria with only a single report since the turn of the present century. All known records are listed here: Sliven, 13.VIII.1911, leg. TSCHORBADJIEV, in coll. NMNHS; Burgas, 25.VIII.1911, leg. TSCHORBADJIEV, in coll. NMNHS, perhaps the same as "Burgas" (GANEV, 1985a); Varna [as Stalin], 1♂ 29.VIII.1954, leg. KARNOZITZKI, in coll. NMNHS (GANEV, 1984; 1985a); Ruse, 28.VIII.1957, in Természettudományi Museum, Budapest, illustrated in SLAMKA (1997); Iskar Gorge at Tserovo, 1♀ on 2.IX.1969, coll. LUKOV (SLIVOV, 1970; GANEV, 1985a); Iskar Gorge at Mezdra, 1♀ at light on 16.IX.1964 (SLIVOV, 1970; GANEV, 1985a); Kraishte, Dobrich region, ♂♂ 25.VIII.2011, leg. S. BESHKOV. There are two undated records, from the Lyulin Mountains and from Nessebar (GANEV, 1985a). GANEV (1985a) states that adults fly in July and August; dated records available are all given above and are from late August (25th) to mid September (16th).

The larva feeds on grasses (Poaceae). and is perhaps most frequently encountered on wheat (*Triticum*), although that could, of course, be because this grass is more often searched!

6355 ***Pediasia luteella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

31 record: [1903] – 2013

P. luteella was first reported for Bulgaria by REBEL (1903) who himself noted *Crambus luteellus* (Schiff.) in the vicinity of Sofia in June and July, adding that in the Vitosha area DRENOWSKI had reported it to him as being "not uncommon". That description of status cannot be applied in 2015 and although doubtless under-recorded to some extent, the moth appears to be extremely localised and not at all common. Only two of the 31 known records relate to the present century – from the village of Zhiten, near Sofia, 1♀ 13.VI.2002, leg. B. ZLATKOV and at Beledie Han, 1♂ 5.VII.2013, leg. S. BESHKOV. These two records span the period from mid June to mid July; analysis including the older records in the database refines the adult flight period to between mid May (14th) and mid June (20th), then from early July (5th to 15th) and finally in early September (3rd), suggesting the species is perhaps trivoltine.

The larva feeds on the roots of grasses (Poaceae), including *Festuca*, *Poa* and *Triticum*. In the former Soviet Union it was regarded as a pest of wheat (*Triticum*) crops (FALKOVITSCH , 1986).

6364 ***Pediasia contaminella*** **(HÜBNER, 1796)**

32 records: [1903] – 2014

This is one of the more widely distributed *Pediasia* species in Europe and is also, perhaps, the most widespread and frequent in Bulgaria. The records are from dry grassland habitats in most parts of the country, but extending from sea level only up to relatively low altitudes. In most cases this latter parameter is not recorded, but analysis of known localities for the moth suggests that it is unlikely to be found above 1000 m. and most places are well below this upper limit. Adults appear to appear in two separate generations, with the greatest numbers from early June (6th) to early July (4th) then a smaller generation from early August (10th) to late August (26th). Occasionally there may be a much smaller emergence between mid September (13th) and mid October (12th).

The larva feeds from a silk gallery that is vertically placed amongst the stems of the grasses (Poaceae) upon which it feeds (SLAMKA, 2008).

6367 ***Pediasia aridella*** **(THUNBERG, 1788)**
= *kasyi* GANEV, 1983, nec BLESZYNSKI, 1960
= *mikkolai* GANEV, 1987

3 records: [1967] – 2011

GANEV (1985a) records this species, as *kasyi*, from Varna, which is also the type locality for his *mikkolai*. As "*caradjaella*" it is noted from Nessebar in July (SOFFNER, 1967; GANEV, 1985a), but the year of this report is unknown. There is also a single recent record, from Dobrudzha Kraishte, near the Romanian border, 1♂ 25.VIII.2011, leg. S. BESHKOV and on the basis of this last it appears that the moth is still present, though doubtless extremely localised, in the Black Sea coastal area.

The larva feeds on saltmarsh grass *Puccinellia maritima*.

6372 ***Pediasia matricella*** **(TREITSCHKE, 1832)**

19 records: 1910 – 2014

This is another scarce species in Bulgaria, with rather few records made in recent years. Most reports are from the lower slopes on the southern mountains, none above 500 m. and from the Black Sea coastal zone, where there are old reports from Varna and Arkutino (Ganev, 1984; 1985a). The only available recent sighting in that area is from Pobiti Kamani, 4♂2♀ 10.IX.2014, leg. Beshkov. The adults fly in Bulgaria from late August (23rd) to late October (20th)

The larva is unknown.

6376 ***Platytes cerusella*** **([Denis & Schiffermüller], 1775)**

37 records: [1903] – 2014

This is probably a widespread species in flowery meadows throughout the country; it is judged to be under-recorded because it is not very strongly attracted to light traps, a fact that was also noted by Slivov (1970). It can be collected by day at flowers or with the use of sweep nets, but light traps in the same grassland overnight rarely produce it. In addition, its small size and general colouration are reminiscent of certain genera of the Tortricidae (although in Bulgaria these are unlikely to be ignored as that group is currently under intensive study). Goater (1986) notes that in England it flies again at dawn. Recorded sites in Bulgaria are all below the 1800 m. contour. In grassland areas where it is present, it is often discovered to be in good number between late May (23rd) and late June (25th). Two records falling outside this period are from 1640 m. in the Ossogovo Mountains, 2♂ 2.VII.1981 and Elenova Gora, 1♂ 1.VIII.2014.

The larva feeds in the roots of grasses (Poaceae) and possibly also of sedges (*Carex* spp.).

6377 ***Platytes alpinella*** **(Hübner, [1813])**

9 records: 1965 – 2014

The distribution map given by Ganev (1985a) shows records from Burgas, Nessebar and Sozopol, but these are in error – the symbols for the two species included in the map are transposed. Slivov (1970) states clearly that this is a high mountain species and was surprised by the record from Romcha, between 500 & 600 m., 1♂ on 25.IX.1965, coll. Lukov (Slivov, 1970; Ganev, 1985a). This is at complete odds with the situation in England where *P. alpinella* occurs on coastal sand and shingle (Goater, 1986) and also sea level post-industrial sites in the London area (personal observations). Other inland Bulgarian records are from Skakavitsa Railway Station, Zemen Gorge (Konyavo (now Konyavska) Mountain), 1♂, 1.IX.1980 (Ganev, 1984; 1985a); Kokalyane, near Sofia (Ganev, 1985a); Malko Tarnovo (Ganev, 1985a); Dolno Cherkovishte village (the Iron Bridge), in the East Rhodopes Mountains, 19.VII.2011, leg. S. Beshkov and in the Strandzha Mountains at Popovi Skali, between Velika & Fazanovo, 1♂26.VII.2011, leg. S. Beshkov. These are scarcely at high altitude, but equally are not at sea level. There are only two coastal reports, from Dolni Chiflik sand dunes and marshy woodland, 9.IX.2010, leg. B. Zlatkov & also 16.IX.2010 when there were a few at light during a large immigration of many Lepidoptera species, leg. C. W. Plant, A. J. Pickles, S. Beshkov & B. Zlatkov. Slightly further inland it was noted at Pobiti Kamani, 1♂ 10.IX.2014, leg. Beshkov. It is possible that this scarce moth is an immigrant to Bulgaria and it would be interesting to collate known dates of immigrant activity and see if any of these coincide with the records of *P. alpinella*. Ganev (1985a) records adults in August and September, although it is unclear if this is based on Bulgarian data. Dated records available are from July (19th and 26th) and then throughout September (1st to 25th), with none in August.

The larva feeds on moss (Bryophyta), but species information is sparse; a reference to *Tortula ruraliformis* originally given in Bleszynski (1965) has apparently been copied by many later authors.

Tribus Ancylolomini Swinhoe & Coates, 1891

This is represented by five species in Bulgaria, of which four are in the genus *Ancylolomia* Hübner [1825]. These can overlap in superficial appearance and although many can be named at sight, others might require closer examination. The four species on the Bulgarian list are less than likely to be joined by other, overlooked, members of the genus and may be separated from each other using just two basic characters of the males. Both *A. palpella* (Denis & Schiffermüller) and *A. pectinatella* (Zeller) have strongly pectinate antennae, clearly visible to the naked eye while in *A. tentaculella* (Hübner) and *A. disparalis* (Hübner) the antennae are serrate, with shorter, squarish projections. One from each group, namely *A. tentaculella* and *A. palpella*, share a distinctive and diagnostic shaped uncus (viewed from the side with a hand lens after brushing away a few scale) whilst the remaining pair, *A. disparalis* and *A. pectinatella*, although not alike, share a quite different arrangement in lateral view. Females may require a more traditional preparation of a microscope slide.

6379 ***Ancylolomia palpella*** **([Denis & Schiffermüller], 1775)**

23 records: [1903] – 2014

This is a species of dry grassland sites and in Bulgaria it clearly favours lower altitudes, up to around 600 m.. Greater detail than this cannot yet be discerned and the altitude of several sites in this analysis has been estimated. The earliest known

record is from Sliven ("in the long valley, by HABERHAUER") (REBEL, 1903). Whether it was rare or simply not noticed is unclear, but BURESCH (1908) refers to "one of this rarely seen species on the night of 23rd August 1904 in Sofia". At the present time it is widespread and rather localised, but may be abundant in places where it is found. Adults have been noted from mid August (17th) to late October (24th), but there are gaps in September which, in spite of the small number of dated records, might indicate bivoltinism, as noted by Slamka (2008) for Europe as a whole. On the other hand, that author recorded flight from June to October; there are no Bulgarian records of *A. palpella* from May or June, although there is one abnormally early report, from Maleschevska, 1♂ 19.V.1918, leg. D. ILITSCHEV, in coll. NMNHS.

The larva feeds at the base of grasses of the genus *Brachypodium* (SLAMKA, 2008).

6380 ***Ancylolomia tentaculella*** **(HÜBNER, 1796)**

38 records: 1911 – 2014

This is by far the most frequently encountered of the four *Ancylolomia* species present in Bulgaria and also the most abundant. It is undoubtedly overlooked in many areas and is likely to prove to occur in most lower-lying areas up to approximately 500 m. throughout the country. The adults have been recorded in Bulgaria from early July (8th) to early October (9th), which is entirely in keeping with the period of July to October reported by GANEV (1985a), but there are rather few July records and the main flight is throughout August and during the first two weeks of September.

The larva feeds at the base of grasses, especially *Dactylis glomerata* (GOATER, 1986), from a vertically aligned silk tube.

6381 ***Ancylolomia disparalis*** **(HÜBNER, [1825])**
= *disparella* (HÜBNER, [1813])
= *contritella* ZELLER, sensu POPESCU-GORJ, 1964

7 records: 1911 – 2010

There are rather few records of this species in Bulgaria and so it is either poorly attracted to light traps or else it is truly a scarce moth. The records are from widely-spaced localities and those with dates are as follows: Burgas, 28.VIII.1911, leg. TULESHKOV, in coll. NMNHS (the reports from Arkutino, south of Burgas, 2♂♂, undated (GANEV, 1984; 1985a) and from Burgas (GANEV, 1985a) perhaps relate to this same record); Balchik area, 1♂, 13.VIII.1930, as "*contritella* Z." (POPESCU-GORJ, 1964) – the report from Balchik in GANEV (1985a) undoubtedly refers to this; and Kresna Gorge, 1♂, 10.V.2010, C. W. PLANT & H. E. BEAUMONT. There are also undated reports from the Ograzden Mountains near Churichene and at Ribnik, as well as from Sliven (all given in GANEV, 1985a). It is of interest that of the three dated records, the most recent falls outside the July to October flight period given by SLAMKA (2008).

In Spain, the larva feeds at the base of grasses (YLLA et al., 1980).

6384 ***Ancylolomia pectinatella*** **(ZELLER, 1847)**

3 records: 1911 – 2009

GANEV (1985a) lists only Kozhuh, near Petrich, but he seems to have overlooked a specimen from Burgas, 8.VIII.1911, leg. TULESHKOV, in coll. NMNHS. Since then it was collected at a site near Ilindentsi, Blagoevgrad region, 1♂, 29.VIII.2009, leg. B. ZLATKOV & Y. MUTACHIEV. It seems to have a restricted distribution in Europe, being confined to the Mediterranean islands, southern Italy, the Dalmatian coastal zone and the southern part of the Balkan Peninsula (Bulgaria and Greece) and so may be genuinely scarce in Bulgaria rather than a species that fails to come to light traps. Outside Europe it occurs in Syria, Iran, Iraq, and south to Palestine.

The larva is unknown.

6386 ***Talis quercella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

12 records: [1903] – [1985]

There is a need to look for this moth in Bulgaria: apparently, it has not been seen here since at least 1985, although the actual last date may be significantly earlier even than that and it may have been lost from the fauna. All known records are listed here. The first is from "Sofia (Kuru Baylar, 8 August) and by Bachmetjev at the Kokalyane monastery in July" (REBEL, 1903). The report of it being found "Rarely, in Kuru Baylar and Losen Mountains, in August" (BURESCH, 1908) seems likely to refer to the same records, as does the mention of "Kokaliane, near Sofia" and "Vitosha Mountains" in GANEV (1985a). There is a specimen from Sliven, 13.VIII.1911, leg. TSCHORBADJIEV, in coll. NMNHS, before SLIVOV (1970) reports it in the Iskar Gorge at Kurilo, 1♂ on 7.VIII.1944, leg. IOSIFOV and Bov, 27.VIII.1965, 1♂ at light. The

reports for the Iskar Gorge in GANEV (19a) refer to these. The only other dated record is from the Balchik area, ♂♂ 21.VIII.1930 & 8.IX.1930 (POPESCU-GORJ, 1964). Undated reports are from Nessebar, August (SOFFNER, 1967) and both Burgas and Balchik (GANEV, 1985a, who also repeats the Nessebar report). Recorded dates above are all for August; a flight period of July to September is suggested by GANEV (1985a).

As a member of the "grass moth" group, the larva of *T. quercella* feeds on the roots of grasses (SLAMKA, 2008), but the adult is reported to have an affinity with oak (*Quercus*) trees at the woodland edge – a habit that doubtless influenced the choice of name made by SCHIFFERMÜLLER.

Subfamily Schoenobiinae DUPONCHEL [1846]

The Schoenobiinae were listed in REBEL's catalogue (REBEL, 1903) but without data. More complete records are to be found in Buresch (1908) and DRENOWSKI (1906 & 1930) amongst others. The most recent compilation of Bulgarian Schoenobiinae is that given by GANEV (1986).

6390 ***Schoenobius gigantella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

15 records: 1903 – 2014

As is the case with most wetland species, *S. gigantella* is confined to relatively few areas of the country for simple reason of habitat availability. However, unlike some others, it probably cannot thrive in small remnants of habitat and it evidently requires larger areas with the foodplant, *Phragmites,* growing in water. DRENOWSKI sent REBEL a female from Sofia for identification (REBEL, 1903); he did not give a date but later BURESCH (1908) refers to the Sofia district with the words "August 1903 around electric lamps". Elsewhere in the south-west GANEV (1986) listed "Sofia, Vitosha Mountains, Kresna Gorge, Kozhuh, and Lebnitsa village, Ograzden Mountain"; earlier, (GANEV, 1984), he had reported "Kozhuh, 2♂♂, 14.VI.1982, which at least dates one of these reports". Curiously, his mention of an undated record at Vidin, 1♀, (GANEV, 1984) is omitted from the later list (in GANEV, 1986) without comment. In the eastern sector, along the Black Sea coast, REBEL (1903) notes this species as present in "Dobrudscha" without any more specific location. This region is an area of overlap between present day Bulgaria and Romania. There are also reports for Nessebar, July (SOFFNER, 1967) and then Varna, Nessebar, Arkutino (GANEV, 1986). There are four dated records from the coast, all modern, and these indicate that the moth remains resident in this area. In date order, these recent records are from Durankulak, lakeside vegetation near Vaklino village, ♂♂♀♀ 17.VIII.2009, leg. C. W. PLANT, S. BESHKOV & B. ZLATKOV; Shkorpilovtsi, near Karadere, 1♀ 8.VI.2010, leg. S. BESHKOV; Kaliakra Peninsula, 1 on 21.VIII.2011, leg. J. ISTVÁN in coll. CS. SZABÓKY and Atanasovsko Lake, 1♀ 9.IX.2014, leg. S. BESHKOV.

In western Europe, the larva is an internal stem-feeder in reed (*Phragmites australis*) and occasionally in Reed Grass (*Glyceria maxima*). It frequently moves to a fresh foodplant and does so by drifting on floating vegetation, an action that may account for the need for foodplant growing out of water. According to GOATER (1986) it pupates head-upwards just below a pre-excavated exit hole. There are no larval data from Bulgaria.

6392 ***Donacaula nilotica*** **(ZELLER, 1867) ssp.** ***alpherakii*** **STAUDINGER, 1874**

3 records: [1967] – [1986]

Bulgaria, Greece and the Danube Delta in Romania form the western limit of the distributional range of this poorly-known Asiatic moth, the nominate subspecies of which is not present in Europe, where it is replaced by ssp. *alpherakii* STAUDINGER. The moth was noted from Nessebar by SOFFNER (1967), repeated in GANEV (1986) who also added Lovech. The only dated Bulgarian record is from the south-west at Kozhuh, 1♀, 11.V.1982 (GANEV, 1984; 1986). There are no other Bulgarian records.

The larva is unknown.

6393 ***Donacaula forficella*** **(THUNBERG, 1794)**

9 records: [1908] – 2009

Either scarce or under-recorded, possibly both, some examples of this species might be confused with the even less-frequently reported *D. mucronella* (DENIS & SCHIFFERMÜLLER). The earliest is from the Sofia district, with a "definite report from Dr REBEL" (BURESCH, 1908); the mention for Sofia, Vitosha Mountain (GANEV, 1986) is regarded as referring to this. The next record from the south and west is not until 1957, from the Rhodopes Mountains in the valley of the Chepinska River, 1♀ 26.VII.1957, leg. H. LUKOV (TULESHKOV & SLIVOV, 1975; GANEV, 1986). Further collections are from the Iskar Gorge, Romcha, 19.VII.1964, 1♂ at light, leg. Velev & 1♂ on 6.VI.1966 and Lakatnik, 17.VII.1965, leg. NIKOLOV (SLIVOV, 1970), but there are none in this region more recent than Kozhuh, 1♀, 10.VI.1981 (GANEV, 1984). Over in the far east, alongside the Black Sea, *D. forficella* was first noted in the Balchik area, ♂

25.VI.1930 (Popescu-Gorj, 1964); since then there is but a single record, from Durankulak, lakeside vegetation near Vaklino village, ♂♂ ♀♀ 17.VIII.2009, leg. C. W. Plant, S. Beshkov & B. Zlatkov. Like the preceding species, this one appears to be hanging on, but as wetland sites become more and more threatened its future is not necessarily bright. Ganev (1986) notes May and June as the adult flight period, but his sources are obscure; our dated records are from early June (6th) to mid August (17th) which is more in line with expectations of a species that is double-brooded in other countries.

The larva feeds on reed (*Phragmites*), Reed Sweet-grass (*Glyceria maxima*) and sedges (*Carex*) species, initially within rolled leaves, occasionally covering itself in fragments of the foodplant to disguise its move to a new host plant. This behaviour allows it to develop in marshes where the foodplant does not grow directly out of water; according to Goater (1986) it can also thrive where the foodplant does grow in permanently flooded areas and in such instances floats on a raft in the same manner as *S. gigantella*. It pupates within the larval workings.

6394 ***Donacaula mucronella* (Denis & Schiffermüller], 1775)**

6 records: 1862 – [1986]

This species is noted by Lederer in the marshes at Varna (Rebel, 1903) and the report for Varna in Ganev (1986) probably refers to the same record. A record from Kozhuh (Ganev, 1986) cannot be dated, but it is tempting to infer from the reports of *S. gigantella* and *D. forficella* at the same site that it might have been in 1981 or 1982. Slivov (1970) lists Romcha, 1♂ at light on 13.VI.1964 and Cherepish, 15.IX.1964, 1♂ from riverside vegetation, det. Soffner, both in the Iskar Gorge, the latter repeated by Ganev (1986) who also refers to Stara Planina and D'algodeltzi village, near Michailovgrad. No other records are available.

The larva feeds on reed (*Phragmites*), Reed Sweet-grass (*Glyceria maxima*) and sedges (*Carex*) species. According to Goater (1986) it pupates just below a pre-excavated exit hole, which is positioned 50 – 57 mm above the root.

6396 ***Scirpophaga praelata* (Scopoli, 1763)**

22 records: [1903] – 2014

In spite of its large size and striking pure white appearance, this is a rarely reported species and this probably reflects a lack of suitable habitat; it requires wetland sites with an abundance of *Scirpus lacustris*. There are old reports from Sofia, "one in August" Rebel, 1903) and "one in June 1905" (Buresch, 1908) and Kozhuh, 2♂♂ 4♀♀, 3.IX.1982 (Ganev, 1984). A survey of the Iskar Gorge by Slivov (1970) produced adults at Mezdra, 1♀ 15.VII.1964, Cherepish, 1♂ on 24.VI.1965 (Slivov, 1970), Lakatnik, 1♂ 17.VII.1965 (Slivov, 1970) , Svoge, 1♀ on 27.VI.1965 (Slivov, 1970) and Romcha, 1♂ at light on 23.VII.1967, leg. Velev. Perhaps a new survey might relocate the species, although there will have been significant habitat loss since the 1960s. Other undated reports are from between Sussam from Gorski Izvor (two kilometres before Sussam village heading from Gorski Izvor), given in Beshkov & Langourov (2004) and from an unspecified locality in the Stara Planina (Ganev, 1986). On the coast, there are undated reports from "Burgas, a female (Rebel) and one in the marshes at Varna by Lederer at around the same time" (Rebel, 1903) and Nessebar, July (Soffner, 1967) along with dated records for the Balchik area, ♀♀, 8.VII.1929 & 5.VII.1931 (Popescu-Gorj, 1964). The two recent coastal records indicated in the distribution map are from Durankulak, lakeside vegetation near Vaklino village, 17.VIII.2009, leg. C. W. Plant, S. Beshkov & B. Zlatkov and the Atanasovsko Lake, 9.IX.2014, leg. S. Beshkov.

The larva mines internally in the stems of *Scirpus lacustris*, often also descending into the roots.

Subfamily Scopariinae Guenée, 1854

The Scopariinae, like the "pugs" (Geometridae, Eupitheciini), have brought dread and terror to the hearts and minds of many a lepidopterist! With very few exceptions the various species have a more or less standardised forewing pattern that shows only minor variations. Some experienced lepidopterists are able to recognise at least some of the species, but achieving this level of expertise requires a familiarity with the group that few of us possess. In any event, the large majority of adult moths extracted from light traps are worn, so that accurate determination necessitates an examination of the genital apparatus. The excellent photographs of the genitalia in Goater, Nuss & Speidel (2005) are drawn to attention, but even here there are difficulties, particularly in separating male examples of genus *Eudonia*. Leraut (1984) recorded eleven species of Scopariinae that he regarded as confirmed for Bulgaria. A further seven species were added by Ganev (1986a); two others are added in the present work to bring the total to 20. The apparent absence of four further species, *Scoparia perplexa* (Zeller, 1839), *Eudonia angustea* (Curtis, 1827), *E. murana* (Curtis, 1827) and *E. pallida* (Curtis, 1827) from the Bulgarian fauna is surprising as all are found in adjacent countries including Greece and Macedonia. Tribus Heliothelini Amsel, 1961, with *Heliothela wulfeniana* (Scopoli, 1763) was originally included in the Scopariinae, along with Tribus Scopariini Amsel, 1961. Modern treatment of the group treats the Heliothelinae Guenée, 1854 as a subfamily.

6172 ***Scoparia pyralella pyralella* [DENIS & SCHIFFERMÜLLER], 1775**
= *dubitalis* (HÜBNER, 1796)
= *arundinata* THUNBERG, 1792

31 records: [1908] – 2014

All of the Scopariinae are regarded as very much under-recorded in Bulgaria, but *S. pyralella* appears likely to be a fairly widespread member of the fauna, though probably absent from arid agricultural and urban zones on the plains. It is relatively frequent on lower mountain slopes, but has been found up to 1300 m. in the Rhodopes Mountains (TULESHKOV & SLIVOV, 1975). DRENOWSKI (1925) records it between 700 and 2500 m. in the Stara Planina, Vitosha, Rila, Pirin and Rhodopes Mountains, but I have no specific information that places it on sites at the higher altitudes. Dated Bulgarian records of adults are from late May (24th) to the end of July (30th).

The larva is recorded on decaying vegetable matter under *Rumex acetosella* in Britain (THURNALL, 1908) and NUSS (2005) mentions the report in MACHIN (1890) that specimens were "received" from a sample of roots of *Senecio jacobaea*. It is evident that the larval requirements are, at best, poorly known.

6174 ***Scoparia ingratella ingratella* ZELLER, 1846**

38 records: [1903] – 2014

This is evidently a widespread and not uncommon species in the south-west of Bulgaria, where its range extends up into the mountains, with several reports from sites above 1000 m. and with the highest record from 2200 m.. It is also present at lower altitudes, especially in river valleys, but the lowest report available is at 430 m. in the valley of the Skrino River, 1♂ 24.V.2002, leg. C. W. PLANT. A humid microclimate appears to be necessary for it to thrive. Of the two elderly records indicated in the distribution map for the eastern part of the country one is from the Sliven mountains (TSCHORBADJIEV, 1919) and thus unsurprising; the species is probably overlooked in the Stara Planina range generally. The second is from the coast at Burgas (GANEV, 1986a) and is harder to explain. GANEV gives neither date nor attribution; since the species is not listed for Burgas by TSCHORBADJIEV (1915) it may be presumed that the record probably post-dates that era. Bulgarian adults are recorded from late May (22nd) to mid July (18th).

Information on the early stages appears to be lacking.

6163a ***Scoparia italica* TURATI, 1919**
= *manifestella italica* TURATI, 1919
= *manifestella meridionalis* KLIMESCH, 1951

3 records: 2004 – 2013

Scoparia italica was raised to specific status by NUSS (1999). The adult flight period is late May to mid July (NUSS, 2005). Bulgarian records are from just two localities: the Mesta Valley near the village of Gospodintsi (Gotse Delchev), 1♀, 6.VI.2004, leg. B. ZLATKOV and near to the village of Paril in a valley of the Slavyanka Mountains, 1♂1♀ 17.VI.2013, leg. S. BESHKOV. The discovery of this sub-montane species in Bulgaria is surprising but correct and I am most grateful to MATTHIAS NUSS for confirming my identification by examining an e-mailed image of the genitalia slide of the Gospodintsi specimen. The centre of distribution of *S. italica* is in the Southern Alps of Switzerland, Austria, Italy and Slovenia, although from here it also extends southwards in the Apennines and eastwards to Croatia (NUSS, 2005).

The early stages appear to be unknown.

6163 ***Scoparia ganevi* LERAUT, 1985**
= *manifestella ganevi* LERAUT, 1985
= *manifestella balcanica* LERAUT, 1984 nec REBEL, 1917

13 records: 1923 – 1986

NUSS (1999) raised *S. ganevi* to specific status; formerly, it had been treated as a subspecies of *S. manifestella* (HERRICH-SCHÄFFER). NUSS (2005) notes that this species is restricted to the Rila Mountains of Bulgaria and the Olympus Mountains of Northern Greece and that the true *Scoparia manifestella* is endemic to the Alps. GANEV (1986a) reports the adult flight period as May/June and then July/August in two generations, and LERAUT (1984) gives one example in October. All Bulgarian examples known to me are now listed: Skakavitsa, 10.VI.1982, leg. J. GANEV – holotype ♀, in coll. USKO (LERAUT, 1984). GANEV, (1986a) and LERAUT (1984) also lists the paratypes as follows: Bunkera, 10 Km south-east of Sofia, 1♀, 28.VIII.1982, leg, GANEV; Chepelare (as "Tchepelam"), 1♀ on 1.VIII.1981, leg. GANEV; Ponan, 1♂ on 13.VIII.1981, leg. GANEV; and Skakavitsa, 1♂on 11.VI.1981, 3♂♂ on 29.V.1982 and 1♂ on 15.X.1982, leg. GANEV. These are all represented by specimens in Sofia Museum and were examined by me during April 2012. However, in the museum there are also specimens collected earlier – Sofia, 3 from 10.V.1923, leg. TSCHORBADJIEV and 1 from vi.1923,

leg. TSCHORBADJIEV; Pirin Mountains, 3 from 12.VIII.1923, leg. TSCHORBADJIEV; Slavyanka (as "Alibotush"), 1 from 27.VII.1930, leg. TULESHKOV. These are also included in GANEV, (1986a); all lack abdomens and appear to have been dissected, but there are no associated labels on the pins and the location of the genitalia slides is unclear. GANEV, (1986a) also includes two further examples, from Kresna Gorge and the Rosen Pass (Rhodopes Mountains), for which I have not been able to find vouchers. In spite of retaining every "Scop" specimen, regardless of condition, from a large number of light traps operating over the last ten years and examining the genitalia of all, I have not encountered any more recent examples. The restriction, in Bulgaria, of this species to the Rila Mountains, suggested by NUSS (*op. cit.*), was based on the very limited data available at that time; the moth appears, in fact, to affect most of the mountainous areas of the south-west of the country.

The early stages appear to be unknown.

6168 ***Scoparia ambigualis ambigualis* TREITSCHKE, 1829**

11 records: 1961 – 2015

The apparent rarity of this widespread European lowland species was unexpected, although subsequent examination of the Fauna Europaea website (accessed January 2016) shows, manifestly incorrectly, this species as positively absent from Bulgaria! All records are given, in date order as follows: Iskar Gorge at Tserovo, 12.VI.1961, 1♀ coll. LUKOV (Sliven, 1970); Iskar Gorge at Bov railway station, 4.VI.1964, 1♀ from shrubs along the Skaklya River (Sliven, 1970); Iskar Gorge at Lakatnik, 6.VI.1964, 1♂ at electric light (Sliven, 1970); Iskar Gorge (GANEV, 1986a); Smirnenski-Michailovgradsko, 1♂, 20.VI.1980 (GANEV, 1984; 1986a); Skakavitsa Railway Station, Zemen Gorge (Konyavo (now Konyavska) Mountain), 1♂, 3.VI.1981 (GANEV, 1984; 1986a); Bunkera, Vitosha Mountain , 1♂, 27.VI.1981 (GANEV, 1984; 1986a); Kostenets, 1♀ leg. Kiriakov, 4.VIII.1981 (GANEV, 1984; 1986a); Rosen Pass, Rhodopes Mountains, 2♀♀, 13.VIII.1981 (GANEV, 1984; 1986a); Chepelare, Rhodopes Mountains, 1♀, 13.VIII.1981 (GANEV, 1984; 1986a); Sandanski-Lilianovo, Begovica, 10. vi. 1986, leg & coll. CS. SZABÓKY; Trigrad (Devil's Throat), 1♂ 12.VII.2015, leg. PLANT. These data give an adult flight period from early June to mid August, but there are gaps; the moths have been recorded from early June (3rd) to late June (27th) then after a gap there is a record from mid July (13th) and after another gap in August (4th and 13th). The lengthy time lapse between the two most recent records is considerable; inevitably, under-recording is a partial cause but this species may well be genuinely rare in Bulgaria. The number of records is too low to draw any firm conclusions on voltinism.

Elsewhere in Europe, the larva feeds on mosses (Bryophyta), but perhaps not exclusively so and there is scope for original research in this area. An interesting summary is given by NUSS (2005).

6165 ***Scoparia subfusca* HAWORTH, 1811 ssp. *zelleri* WOCKE, 1855**
= *cembrae* HAWORTH, 1811 [e.g., *sensu* TULESHKOV& SLIVOV (1975)]
= *cembrella auctt.*
= *Eudorea zelleri* WOCKE, 1855

25 records: 1930 – 2014

According to NUSS (2005), the confusion with the name *cembrae* HAWORTH, 1811 and the subsequent misspelling *cembrella* is a misinterpretation of *Solenobia cembrella* (LINNAEUS, 1761) of the Psychidae. LERAUT (2012) notes that the nominate subspecies is tinged with beige or very light brown and is found in both southern England and central Europe, whilst ssp. *zelleri* WOCKE, 1855 occurs in the Alps and has a distinctly more ashen aspect; in combination with his colour illustrations I interpret this as implying that ssp. *zelleri* is grey in colour. This is a subtle difference and the reader is cautioned that colour interpretation under artificial light in a museum basement may differ from that undertaken in natural light or aside an mv lamp at night; comparison is essential. Older material in NMNHS has faded and many of the recently taken specimens are in worn condition. However, in comparison with British material, the Bulgarian specimens that I have personally examined appears to belong to ssp. *zelleri*.

S. subfusca is a relatively widespread and common moth in Bulgaria; interestingly, it was not recorded in the country prior to 1930, the earliest record being of 1♀ (as "f. *zelleri*") from the Balchik area, 1.VIII.1930 (POPESCU-GORJ, 1964). Undated records are Nessebar, August and September – as "*cembrae*" (SOFFNER, 1967); Nessebar (GANEV, 1986a); Euxinograd, near Varna (GANEV, 1986a) and Balchik (GANEV, 1986a). Dated records suggest two separate generations of adults, flying from late May (24th) to late June (21st) and then again from late July (25th) to early September (9th), with a single later record (Kaklitsa, 1♂ on 12.X.2012, leg. S. BESHKOV) perhaps indicating a partial third generation in favourable years. GANEV (1986a) gave the adult flight period as May to October.

The larvae feed on the surface layers of the roots of *Picris hieracioides* (Asteraceae) from under a slight web of silk, occasionally tunnelling into the root for a short distance; pupation is in the adjacent soil, but affixed to the root, in a cocoon that incorporates soil and fragments of root (e.g., WOOD, 1888; BUCKLER, 1901). References to feeding in the rootstock of *Tussilago farfarae* (Asteraceae) in BUCKLER (1901) are unconfirmed, because adults were not successfully reared. The early stages are unknown in Bulgaria.

6167a ***Scoparia graeca*** **Nuss, 2005**

2 records: 2004 – 2006

Nuss (2005) considered this new species to be, perhaps, the eastern vicariant species of the western *S. gallica* Peyerimhoff, 1873, suggesting that the two may have been separated during the Pleistocene. He records it from the Peloponnese region of Greece and from Crete, between altitudes of 1300 and 2250 m. with adults on the wing from early June to mid July. In Bulgaria, two female examples are known, both recognised in the collection of Dr B. Zlatkov: Mesta Valley, Gotse Delchev district, Gospodintsi village, 600m, 22.VII.2004, leg. B. Zlatkov and Western Rhodopes Mountains, Koupena Reserve, 1100 m, 31.VII.2006, leg. B. Zlatkov.

The discovery of *S. graeca* in Bulgaria is perhaps not surprising given the poor level of study applied to the Scopariinae throughout Europe; these new records also extend the known altitudinal range significantly.

6166 ***Scoparia basistrigalis*** **Knaggs, 1866**

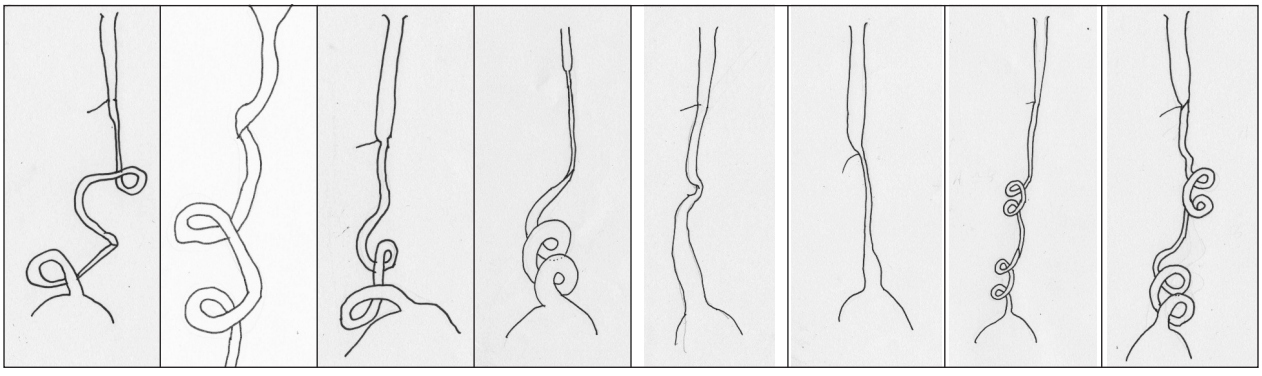
18 records: 1967 – 2014

Throughout its European range *S. basistrigalis* is primarily a woodland moth and Bulgarian records seem, in general, to support this. It is interesting that there is a bias of records in the west of Bulgaria with none from the coastal strip. Whether this is real or a reflection of recording bias is currently unclear, but in areas where the moth is recorded it is common and it is expected to be present in many other wooded areas from which it is not yet recorded. Records indicate an adult flight period from mid June (16th) to early August (1st) which is in keeping with June and July, given by Ganev (1986a). There is a single later record, from late August (25th) in 1968 at Trigrad (specimen not seen).

The larva feeds on mosses (Bryophyta). Data on actual species is absent, but Nuss (2005) refers to larvae reared in Germany on a mix that included *Brachythecium rutabulum*, *Eurhynchium praelongum* and *Ceratodon purpureus*.

Genus *Eudonia* Billberg, 1820

The genitalia of the males provide little in the way of reassurance when it comes to confident separation of the species. On the other hand, female *Eudonia* provide excellent recognition features provided that the natural position of the *ductus bursae* is not disturbed during dissection. The ductus bursae is possessed of a number of loops and kinks that are constant within each species. Negative staining (using e.g., methyl black) is advised to highlight the non-sclerotised parts, so that the ductus bursa may be cleaned *without it being stretched*. It is most strongly recommended that the abdominal skin is not removed; retaining this provides a measure of support to the natural form of the ductus, particularly when applying a cover slip to the microscope slide. In a properly cleaned, stained and cleared slide the ductus is easily visible through the abdominal skin. The various loops and kinks of the ductus bursae are illustrated in Fig. 18, and a short key based on the illustrated characters is presented.



E. delunella *E. lacustrata* *E. laetella* *E. mercurella* *E. murana* *E. petrophila* *E. phaeoleuca* *E. sudetica*

Fig. 18: Natural positions of the ductus bursae of *Eudonia* species known in Bulgaria. Diagrammatic only; note that not all species illustrated for this purpose are drawn from Bulgarian specimens.

Brief key to female *Eudonia* found in Bulgaria.

1: Ductus with no complete loops … 2
-: Ductus with complete loops … 3

2: Ductus bursae with an S-shaped fold, not a true loop, at about half way. Join of ductus with colliculum gradual … *Eudonia murana*
-: Ductus bursae may be twisted (artefact of dissection process) but lacking this distinct curve. Join of ductus and colliculum abrupt … *Eudonia petrophila*

3: Ductus with 2 complete loops … 4
-: Ductus with 4 complete loops … 7

4: The two loops very close to each other and adjacent to the bursa copulatrix, with only a short section of the ductus, or none at all, between the bursa and the anterior loop. Anterior part of the ductus broad but thinning posteriorly to become long, narrow and straight at the posterior end … *Eudonia mercurella*
-: Not like this … 5

5: A straight section of ductus between the anterior loop and the bursa copulatrix. The Section of the bursa posterior to the loops relatively long and with a distinct kink about half way between the loop and the insertion of the ductus seminalis … *Eudonia lacustrata*
-: Not like this … 6

6: The two loops relatively close to each other and in the anterior section of the ductus. Colliculum about twice as long as that section of ductus bursae between the posterior loop and the insertion of the ductus seminalis … *Eudonia laetella*
-: The two loops positioned more or less one anteriorly and one posteriorly, the separating section of ductus with a distinct kink. Colliculum about equal in length to the section of the ductus bursae between the posterior loop and the insertion of the ductus seminalis … *Eudonia delunella*

7: Section of ductus between loops 2 and 3 with a kink or fold, rarely expressed as an additional loop. Ductus bursae lacking a distinct kink at the point of insertion of the ductus seminalis … *Eudonia phaeoleuca*
-: Section of ductus between loops 2 and 3 lacking a kink or fold, but with a kink in the ductus bursae at the point of insertion of the ductus seminalis … *Eudonia sudetica*

It is considered possible that other species of *Eudonia* might be discovered in Bulgaria; any specimen not fitting these characters easily should be scrutinised carefully with this in mind.

6195 *Eudonia mercurella* (LINNAEUS, 1758)
= *Scoparia frequentella* STAINTON, 1849 sensu REISSER & ZÜLLICH, 1934

85 records: 1930 – 2014

E. mercurella is the most widespread and abundant of the Scopariinae in Bulgaria; only the arid nature of some arable and urban areas of the plains prevents it from being ubiquitous. It is equally frequent along the coast in the east as it is in the mountains of the south-west, where it has been noted up to about 1600 m.. Apart from an early report of 1♂ from 9.V.2014 at Kozhuh, the adults fly more or less continuously from mid June (14th) to mid September (18th). Allocating the phenology data to standard weeks (vide PLANT, 1994), and plotting the results shows that there are probably two generations, peaking in week 30 (23rd to 29th July) and again in weeks 32 and 33 (6th to 19th August).

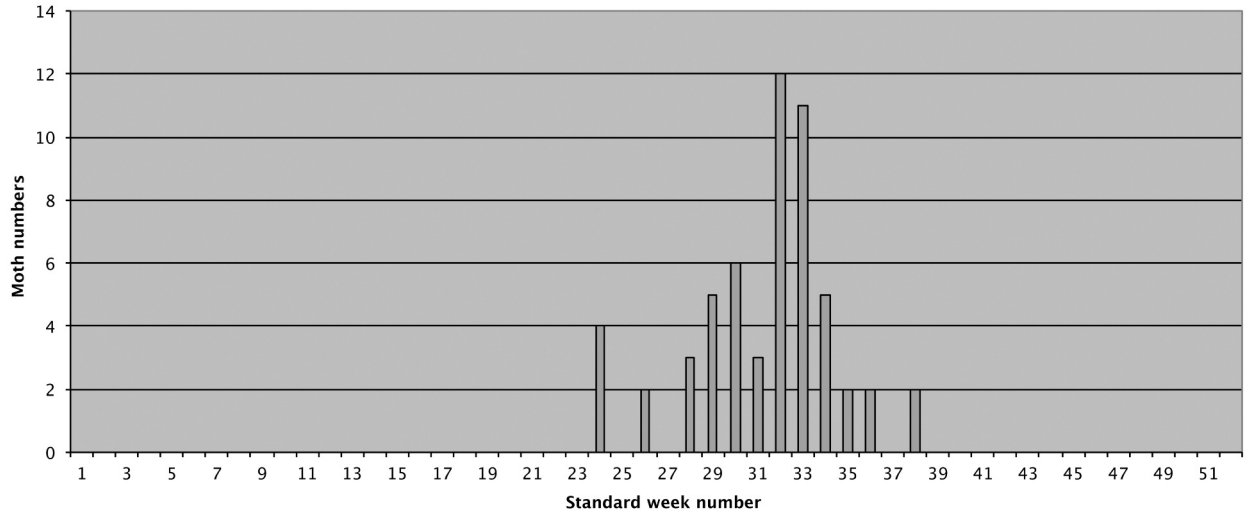


Fig. 19: Flight period by standard week number (horizontal axis) of *Eudonia mercurella* (LINNAEUS, 1758) in Bulgaria.

The larva feeds on mosses (Bryophyta), including *Hypnum cupressiforme* and *Isothecium alopecuroides* (Nuss, 2005) but other species may be utilised.

6180 ***Eudonia lacustrata lacustrata* 1804**
= *Dipleurina lacustrata* (Panzer, 1804)
= *Eudonia crataegella* Hübner, 1796
= *Witlesia crataegella* (Hübner, 1796)

54 records: 1928 – 1914

This is another very widespread species in Bulgaria. Although it is found in a wide range of habitat types and localities, a common feature is the presence of woodland, or at least scrub, within a fairly short distance. Adults may be found by day resting on vertical or near vertical trunks and branches, usually amongst lichens, or under loose bark and it seems possible that this micro-habitat is a critical requirement for the species to thrive. Adults have been recorded in Bulgaria from mid June (12th) to mid September (17th) with small, but barely discernible, peaks in standard weeks numbered 24 (11th to 17th June), 31 (30th July to 5th August) and 36 (3rd to 9th September.

The larva feeds on mosses (Bryophyta), with several different species recorded elsewhere in Europe, summarised by Nuss (2005).

6189 ***Eudonia delunella delunella* Stainton, 1849**

4 records: 1980 – 2012

The four records are from just three localities – two in the south-west and one in the south-east. In the former area we have the Kresna Gorge, 1♂ det. Leraut, 9.VI.1980 (Ganev, 1984; 1986a) and not too far away near Petrich at Kozhuh, 1♂, 14.VI.1982 (Ganev, 1984; 1986a) with this latter site also producing 1♂, 11.V.2010, C. W. Plant, H. E. Beaumont & B. Benedek. Over in the south-east, it is found also at the Ropotamo Reserve, where there were 3♀♀, 30.VIII.2012, leg. S. Beshkov. Both Kresna and Kozhuh are popular places for recording Lepidoptera and the paucity of records might indicate a rare species. However, the spread of dates, in early May, mid June and late August suggests a species that either has several adult generations or a single protracted emergence and begs the question of why the species has not been recorded at other seasons in the two frequently visited sites of Kresna and Kozhuh. One possible conclusion might be that it is only weakly attracted to light, although it comes freely to light at a site in southern England (B. Goater, pers. comm.). It is a fairly easy moth to recognise, since only this species and *E. petrophila* (Standfuss) have a distinctly rounded uncus in the male genitalia, visible without dissection and within this pair only the present species is without a hamus on the wing.

The larva is said by several authors to feed on both lichens and mosses (Bryophyta) growing on trees.

6188 ***Eudonia laetella* (Zeller, 1846)**

2 records: 1911 – 1986

Montane habitats appear to be the preference elsewhere of this species, which is absent from most of Western Europe but extends eastwards from Central Europe across Russia and northern parts of Asia Minor. The two Bulgarian records might indicate that it is resident in the country, but the moth simply does not feature in light trap samples from the two areas where it has been found so far, and specific searching is likely to be required to find it. The two known localities are the Slavyanka Mountain [as Alibotush] given in Ganev (1986a) and at Sliven, 25.VII.1911, leg. Tschorbadjiev, in coll. NMNHS (the report for Sliven by Ganev (1986a) is presumed to refer to the same record. Nuss (2005) notes that this species is very rarely reported throughout the whole of its European range.

The larva is presumed to feed on mosses (Bryophyta), but no evidence for this has been located in the literature.

6183 ***Eudonia petrophila* (Standfuss) ssp. *balcanica* Rebel, 1917**

2 records: 1930 – 1930

The two Bulgarian records are from Slavyanka [as Alibotush] Mountain and relate to the specimens labelled from here for 28.VII.1930 and 30.VII.1930, leg. Tuleshkov, in coll. NMNHS. The report from Alibotush Mountain, at 2100 m. by Ganev (1986a) perhaps refers to the same, but the data labels do not bear the altitudinal information that he cites. There is a possibility that Ganev caught the species on a different occasion, on one of the several trips that he certainly made to that site. Either way, the moth is either very rare or very much under-recorded in Bulgaria. Elsewhere in Europe, it is a montane species that flies from June to August. This species should be searched for, specifically, on lichen-covered and moss-covered rocks at high altitude where it is likely to rest in exposed sites, perhaps relying on its cryptic colouration to evade detection.

The larval pabulum is unknown.

6197 ***Eudonia sudetica* (ZELLER, 1839)**

5 records: [1986] – 2014

GANEV (1986a) lists only the widely spaced localities of Balchik and Kaloter, at the latter between 1600 and 1800 m., for this species. There are just three subsequent records, from Slavyanka Mountain at 1560 m., 1♂ 18.VI.2013, at Sharalia, 1200 m., 1♀ 8.VI.2014 and at Chepan Mountain, 975 m., 1♀ 12.VI.2014, all leg. S. BESHKOV. The sea level record from Balchik is not exceptional: other authors (e.g., LERAUT, 2012) states that it occurs at sea level in some parts of its range and up to 2700 m. in others. NUSS (2005) notes that in Central Europe *E. sudetica* is associated with native *Picea* forest whilst in upper montane habitats it is associated with *Pinus cembra* and/or *Juniperus* spp. In northern Europe it favours *Betula* woodland in some areas and coniferous forests with *Erica* in others. The common factor seems to be trees with mosses growing on their trunks and it is in this microhabitat that the larvae may be found (NUSS, 2005), though the moss species require elucidation.

6191 ***Eudonia phaeoleuca phaeoleuca* ZELLER, 1846**

23 records: 1980 – 2014

According to NUSS (2005), this is another higher altitude species, found from the submontane to the subalpine zone. In Bulgaria it occurs in the Ossogovo, Rila, Konyavo (now Konyavska) and Rhodopes mountain ranges and is probably also present in others. The highest altitude recorded here is 1870 m. in the Rhodopes, but many records fail to provide altitude information so that this is unlikely to be representative. Apart from three early reports in June (7th, 8th and 18th) and a late one in late September (30th), the adults fly from mid July (15th) to mid September (10th), with no discernible subdivision into separate generations.

The larva has been associated with an un-named moss growing on a tree trunk (NUSS, 2005), but there are no Bulgarian data on the early stages.

6182 ***Eudonia murana murana* CURTIS, 1827**

3 records: [1925] – 1933

This boreo-montane species is very similar in appearance to *E. phaeoleuca*, although the two show slight differences in habitat preference, with larvae of the present species apparently preferring to feed amongst mosses growing on the ground, rather than on tree trunks. Bulgarian records are from the Rila Mountains, at 1400 m. (DRENOWSKI, 1925), from the Rila Mountains, up to 1600 m. (GANEV, 1986a) – probably referring to the DRENOWSKI data and from the Pirin Mountains above Lilianovo, 22 -27.VII.1933, leg. REISSER (REISSER & ZÜLLICH, 1943). The moth is probably rare, but nevertheless potentially unrecorded in a small number of higher altitude sites.

6193 ***Eudonia truncicolella* (STAINTON, 1849)**

14 records: 1967 – 2014

In spite of the relatively small number of records, this is probably a fairly widespread and not uncommon species in lowland and low montane habitats with scrub or open woodland in association with adjacent areas of open habitat. Adults are recorded more or less continuously from the start of July (2nd) to the end of August (28th) in Bulgaria in the Pirin, Rila, Rhodopes, Vitosha, Ossogovo and Ograzden mountain ranges and is probably overlooked elsewhere.

The larvae feed on mosses (Bryophyta) and several species are listed by NUSS (2005) who provides the most up to date summary.

6162 ***Cholius luteolaris* (SCOPOLI, 1772)**
= *Cholius ochrealis* [DENIS & SCHIFFERMÜLLER], 1775
= *Pyralis ochrealis* ([DENIS & SCHIFFERMÜLLER], 1775)

15 records: [1903] – 2010

According to (SLIVOV, 1970) this species inhabits open grassy areas with mixed sparse shrubs; NUSS (2005) states that it is associated with xerothermic steppe habitats. Most Bulgarian data support the former view, but the presence of the species at Cape Kaliakra also confirms the latter. It is said to be a spring species, but flies from mid-May (20th) to late July (27th) in Bulgaria, with the number of records too low for any peaks to become apparent. It is widespread across Bulgaria and probably overlooked in at least some of the places where it has not yet been found.

The larval requirements appear to be unknown.

6178 ***Anarpia incertalis incertalis* Duponchel, 1833**
= *Anarpia pyrenaealis* (Duponchel, 1842)

13 records: 1910 – 2014

This is a Southern European species which occurs in those countries with a Mediterranean seaboard; this includes the Balkans, though it remains unrecorded from some countries of the former Yugoslavia on the Dalmatian coast. In Bulgaria, there are reports from widespread localities, indicating a presence from sea level at Burgas up to just below 1600 m. in the south-west at Slavyanka. Leraut (2012) records it up to 2600 m. elsewhere in Europe. Adults are on the wing in Bulgaria from late May (22nd) to early July (5th) then late July (23rd) occasionally and without particular pattern until the end of September (30th).

The early stages appear to be unknown,

6176 ***Gesneria centuriella* ([Denis & Schiffermüller], 1775)**

7 records: 1933 – 2013

This is another boreo-montane species that is likely to be under-recorded in Bulgaria. There are undated reports in the literature from Borovets, July (Soffner, 1967); Borovets, Rila Mountains (Ganev, 1986a); Banderitsa, Pirin Mountains (Ganev, 1986a). Dated records are available from the extreme south-east at Fazanovo, 18.VII.1985, 2 examples, leg. L. Ábrahám (Fazekas, 2009) and in the south-west at Slavyanka, 1560 m., 1♂1♀ 18.VI.2013, leg. S. Beshkov. The south-west also produced the earliest record from above Lilianovo, 900 m., 22-27.VII.1933 (Reisser & Züllich, 1934). Interestingly, Nuss *in* Goater, Nuss & Speidel (2005) comments that moths are mostly recorded in July but with a few June records from the Balkans in the Pirin and Balkan Mountains in Bulgaria. It should be noted that "Balkan" as a place, rather than as a broader geographical region, lies in the Stara Planina, from which no records of *G. centuriella* are known.

Subfamily Heliothelinae Guenée, 1854

The single species in this genus has been included as a Tribe (Heliothelini Amsel, 1961) within the Scopariinae by several authors. However, Nuss (2005) places it firmly within the monotypic subfamily Heliothelinae, a view that is retained here.

6201 ***Heliothela wulfeniana* (Scopoli, 1763)**
= *Heliothela atralis* Hübner, 1788 nec Fabricius, 1775

10 records: [1903] – [1988]

This is a daytime-flying species and so is not represented in light traps except on the rarest of occasions. It flies very strongly in bright sunshine, keeping close to the ground and if seen at all might be dismissed as a "micro". Dry, sunny and usually sandy sites are preferred, especially if there are areas with only sparse vegetation. The adults settle on flowers and appear to feed on the nectar of some, especially *Viola* species. It is a widespread, but not often encountered species in Southern Europe. The fact that it has not been seen for several years in Bulgaria is most probably a reflection of under-recording and the moth is most likely to be widespread, common. Available dated records show Bulgarian adults flying from late April (27th) to late August (27th). This is interesting, because Leraut (2012) gives the flight period as July and August; four of the six dated Bulgarian records fall before the start of this period. These are at German (a suburb of Sofia), 27.IV.1912, leg. Buresch and Sliven, 5.V.1913, 21.V.1913 and 10.VI.1913, leg Tuleshkov (Ganev, 1988); the first two are represented by specimens in NMNHS are have been verified as correctly named. The other dated records are from Bov Railway Station, 1♀, 27.VIII.1965 (Slivov, 1970) and Skakavitsa Railway Station, 1♂ 3.VIII.1979 (Ganev, 1984). The example from Bov is the exception that breaks the rule – it was caught at light! Undated reports include the first and presumed last dates and are from Sliven and Varna (Rebel, 1903) and from Burgas and Razgrad (Ganev, 1984).

Elsewhere in Europe, the larva feeds on violets (*Viola* spp.) mining the leaves and the stem. Also recorded once on mint (*Mentha*) species (Schütze, 1931).

Subfamily Cybalomiinae Marion, 1955
Ganev (1986b) includes a single species and this remains the situation in 2015. Two other species are known from Greece, but neither is expected to be present in Bulgaria.

6405 ***Hyperlais dulcinalis* (Treitschke, 1835)**

14 records: 1862 – 2014

Reports of this species from Western Europe refer to immigrant examples, usually from North Africa, including several that reached the British Isles in December 2015, providing the first national records for both England and Ireland. In Eastern Europe and the Balkans, on the other hand, the moth appears be resident, but only very locally so. The thirteen Bulgarian records extend from the coast at Kaliakra to the mountains of the south-west and include the earliest, from Sliven, whence REBEL (1903) records catching several during his stay and where it had previously been recorded by LEDERER in 1862. Records of adults extend from early May (3rd) to late June (28th).

The larvae are evidently unknown.

Subfamily Acentropinae STEPHENS [1836]

The five species formerly placed in the Nymphulinae were listed by GANEV (1982) who recorded *Parapoynx nivalis* as new to Bulgaria. A sixth species, *Acentria ephemerella*, was placed in Acentropinae by GANEV (1988). The species of Acentropinae as currently understood are unusual amongst Lepidoptera in having fully aquatic larvae, which feed from cases made of fragments of foodplant in the manner of some Trichoptera. Phylogenetically, they are closely related to the Schoenobiinae and their placement within the checklist may need to be revised.

6416 ***Elophila nymphaeata* (LINNAEUS, 1758)**
= *Nausinoe nymphaeata* (L.) *sensu* SLIVOV, 1970

45 records: [1903] – 2015

This appears to be the most frequent member of the Acentropinae in Bulgaria, though interpretation of reported localities should take into consideration the known movements of many wetland moth species, particularly on humid nights. The first record is from the Sofia district, "rarely, at Kurn-Baylar, Vrana Farm and Losen in June and July" (BURESCH, 1908) and subsequent reports are from a wide area. The adults have a long flight period, from late May (24th) to mid September (14th) but there is a gap of about three weeks from late June (25th) to mid July (14th) during which no moths have been reported. The season of May to October given by GANEV (1982) may not have been based on Bulgarian data.

The larvae feed on water lilies, *Nymphaea alba* and *Nuphar lutea*, on the under-surface of the leaves eating holes that betray their presence. SPEIDEL (2005) states that the larva is polyphagous on aquatic plants, including *Callitriche*, *Potamogeton* and *Alisma*.

6421 ***Acentria ephemerella* ([DENIS & SCHIFFERMÜLLER], 1775)**
= *Acentropus nivea* OLIVIER, 1791

2 records: 1896 – [1988]

In this species there are two forms of the female, one fully winged and a nearly wingless (brachypterous) form which remains submerged under water for its entire life and is mated at the meniscus. In areas where the species is common, synchronised emergence of adults is frequently reported on nights with a significantly raised relative humidity and colossal numbers of males are attracted to light traps along with a few females; it is presumed that this is a dispersal mechanism and that the brachypterous females are the norm. In keeping with their specific epithet, their lives are short and most of those entering live-catch moth traps are dead by the morning; it is not unusual in some years, in southern England, to find several thousand males in a light trap. Such a swarm of males was noted at Chiflik Stambulof, near Burgas on 3.VII.1896 (REBEL, 1903) and the report by GANEV (1988) for Burgas almost certainly refers to this. However, there is only one other report from Bulgaria – at Nessebar, undated in GANEV (1988), the origin of which is obscure. It is interesting that the Fauna Europaea website, accessed January 2016, shows this species to be absent from Greece, to the south, and unrecorded ("no data") in most of the former Yugoslavia. Thus, perhaps it is genuinely very rare or even extinct in Bulgaria. A swarm of males would not be overlooked in a trap, but might be dismissed by macrolepidopterists as Ephemeroptera, within which group there is a "look-alike" species.

The larva are reported elsewhere feeding up to 3 m. below the water surface (AGASSIZ, 1996). SPEIDEL (2005) records it on species of *Potamogeton*, *Ceratophyllum*, *Myriophyllum*, *Trapa*, *Elodea* and other aquatic plants Some useful drawings of the early stages, including larval cases, are given by AGASSIZ (1996).

6423 ***Cataclysta lemnata* (LINNAEUS, 1758)**

28 records: 1903 – 2012

This species is said to be far less inclined to wander than *E. nymphaeata* and is rarely found very far from its natal site. Consequently, whilst many records of *E. nymphaeata* might be puzzling, those of *C. lemnata* are usually rather more indicative of a nearby body of water. The two species are probably fairly widespread but very local in Bulgaria. GANEV

(1982) reports adults from May to October. Dated records available for Bulgaria are hard to interpret, with two in the first week of May, two in the fourth week of May, two in mid June and then an obvious emergence from late June (30th) to the end of July (30th). This is followed by a two week gap and then more adults fly from mid August (11th) to the end of August (30th). There is a single later record, from 25th September.

SPEIDEL (2005) states that the larvae feed predominantly on duckweeds (*Lemna* spp.), but have also been also noted on *Myriophyllum* and other water plants and have been reared successfully on leaves of *Robinia pseudoacacia* placed in water.

6425 *Parapoynx stratiotata* (LINNAEUS, 1758)

20 records: 1903 – 2011

The distribution of this species is likely to be the same as that of the last – widespread but extremely localised, in this case to bodies of water where the pond weed *Myriophyllum spicatum* thrives. However, there are only four records made in the present century – in the south-west at Dragoman Marsh, 19.VIII.2009, leg. C. W. PLANT, B. ZLATKOV & S. BESHKOV and in the Black Sea coastal zone at the mouth of the Velika River, 2.VII.2009, leg. B. ZLATKOV, at Durankulak on the Romanian border, 14.IX.2010, leg. C. W. PLANT, A. J. PICKLES, B. ZLATKOV & S. BESHKOV and at Cape Kaliakra, 9.VI.2011, leg. B. STEEN LARSEN. The adults fly freely and are attracted to light traps, and have been recorded from early June (9th) to mid September (16th), but not continuously and there are significant gaps in the second half of June as well as late August (20th) to mid September (13th) during which there are no sightings.

According to SPEIDEL *in* GOATER, NUSS & SPEIDEL (2005), *Myriophyllum spicatum* is the principal host plant of the larva, which is very active and feeds from a loose silk web rather than a case. He quotes references to several other aquatic plants as hosts.

6427 *Parapoynx nivalis* ([DENIS & SCHIFFERMÜLLER], 1775)

1 record: [1982] – [1982]

The only Bulgarian record is that given by GANEV (1982) for "Smirnenski-Michailovgradsko", which is in the north-west corner of Bulgaria. In the same paper he refers to an adult flight period of June, which is surprising given that this is the only Bulgarian record and is unaccompanied by any other data.

The early stages are unknown.

6431 *Nymphula nitidulata* (HUFNAGEL, 1767)
= *stagnata* (DONOVAN, 1806)

9 records: [1903] – [1982]

With only nine records, none of which are in the recent period, there must be concern for this attractive species, which is known as the Beautiful China Mark in England. Dated records are all from the 1960s. SLIVOV (1970) tells us that "This species is rare in the Iskar Gorge with the exception of July 1964 when I found it in all visited places in the gorge. It is active at dusk and is attracted by electric light". In the Rhodopes Mountains it is reported from Kardzhali, 3♂♂ 2♀♀ 23.VI.1969 and Batak Dam, 5♂♂2♀♀ 22.VII.1967 (TULESHKOV & SLIVOV, 1975; GANEV, 1982). All remaining records are undated. The earliest is a mention of Sliven by REBEL (1903); the rest comprise a simple list of localities (Petrich, Pirin Mountains, and Razgrad), given by GANEV (1982); that year must be taken as the last possible for the species, though it is likely that the records were made somewhat earlier.

The aquatic larvae are known to feed on *Sparganium* spp., *Butomus* and *Glyceria* from a case made of two joined sections of the foodplant (Buckler, 1901).

Subfamily Odontiinae GUENÉE, 1854

Nine species of Odontiinae were listed for Bulgaria by GANEV (1985), but he overlooked *Epascestria pustulalis* (HÜBNER) [now *Cynaeda pustulalis*] and *Ephelis cruentalis* (GEYER), which had already been reported from the Iskar Gorge area by SLIVOV (1970) – but see taxonomic note under *E. cruentalis*. Later (GANEV, 1988), he added these to the list, along with *Tegostoma comparalis* (HÜBNER), but omitted to mention the fact that they had been overlooked and failed to provide either the data behind the records or their source. One more species, *Eurrhypis guttulalis* (HERRICH-SCHÄFFER), was included in the list by KARSHOLT & RAZOWSKI (1996) on the advice of GANEV himself (O. KARSHOLT, pers. comm.), but support for this is weak. Thus, the total of Bulgarian Odontiinae stands at 12 species.

Tribus Odontiini GUENÉE, 1854

The tribe is defined on the basis, primarily, of having larvae that bore into the stems of plants, unlike the Eurrhypini, the larvae of which feed externally on leaves, flowers fruits and only rarely the stems.

6435 ***Metaxmeste phrygialis* HÜBNER, 1796**
= *Titanio phrygialis* HÜBNER, 1796 *sensu* DRENOWSKI (1925)

7 records: [1903] – 1980

As with the next species, this is a denizen of higher altitudes where it is associated with the flower-rich alpine meadows that are its favoured habitat. The larval requirement for "a diverse range of low-growing plants" (LERAUT, 2012) means that it is found in different habitat zones of the mountains from those where *Metaxmeste schrankiana* is expected. REBEL (1903) notes that HABERHAUER caught a fresh male in the Rila area and this is the earliest Bulgarian report. It is also recorded from the Pirin Mountains at El Tepe, 2400 m., 24.VI.1914 & 12.VII.1915, leg. BURESCH, in coll. NMNHS and Pirin, 16.VII.1921, leg. BURESCH, in coll. NMNHS. SOFFNER (1967) also lists the Pirin Mountains, in July, leg. LUKOV. DRENOWSKI (1925) mentions the Pirin Mountains, between 2000 and 2800 m. and the Rila Mountains, between 2000 and 2900 m.; both are later referenced in GANEV (1985) who does not imply any more recent records. The Slavyanka Mountains are also represented, by a single specimen labelled "Alibotush", 19.VII.1929, leg. TULESHKOV, in coll. NMNHS. The most recent record is that from the Suhiat ridge, labelled as "Suhia cal", 17.VII.1980, given in GANEV (1984), but without altitude data. Although some 35 years have elapsed since the last available record, it seems unlikely that the moth has disappeared from the Bulgarian fauna.

6437 ***Metaxmeste schrankiana* HOCHENWARTH, 1785**
= *Titanio schrankiana* HOCHENWARTH *sensu* DRENOWSKI (1925)

6 records: 1925 – 2010

This moth is represented in Europe by four isolated populations, in northern Scandinavia, the Pyrenees, the Alps and the Carpathians. In Scandinavia it is restricted to the boreal forest, the taiga, but in the three other localities it is a high altitude species. The Carpathian population is, of course, the one that occurs in the Balkans and the moth is present in Bulgaria, rather unsurprisingly, only in the south-western mountains where the peaks rise to sufficient height. Analysis of the few dated Bulgarian records indicates a flight period in mid June. However, in the Alps at least, it is on the wing from April onwards and along with other species might usefully be looked for in Bulgaria along the snow line, that is the interface of snow and land as the former melts and retreats, from about April onwards. Indeed, the presence of a spring-melting snowline might be the main factor affecting distribution (as opposed to altitude, which merely facilitates the formation of such habitat features). The adults fly in full sunshine and it is unclear if they are active by night, when the air temperature may be too low. The earliest Bulgarian record is from the Rila and Pirin Mountains, between 2250 and 2500 m. (DRENOWSKI, 1925) and the later reference to the Rila Mountains, between 2000 and 2500 m. (GANEV, 1985), is presumably a reference to the DRENOWSKI data; no update in terms of the year of the record can be implied. It is also recorded from Slavyanka Mountain (as Alibotush Mountain) without details in GANEV (1985). More recently, it was collected above the Rila Monastery at 1900 m., 13. vi. 1986, leg Cs. SZABÓKY and from "Rila Mountains at 2200 m., above Macedonia Chalet near the summit of Golyam mechi vrah", 14.VI.2009, leg. & gen. det. B. ZLATKOV. The most recent record is from Orelyak, at 1520 m., 13.VI.2010, leg. B. ZLATKOV & O. SIVILOV, which must be very close to the 1986 site "above Rila Monastery".

According to Leraut (2012) the larva feeds on plants of the family Ericaceae, specifically *Vaccinium* and *Calluna*, devouring the leaves but retreating to a silk case amongst mosses (Bryophyta) and lichens on the ground.

6441 ***Aporodes floralis* HÜBNER, 1809**
= *Noctuelia floralis* HÜBNER, 1809

51 records: 1862 – 2014

This frequently encountered moth has extremes of colour, from examples with the hind wings almost entirely dark (f. *stygialis* TREITSCHKE), to others in which they are quite pale and yellowish; the latter can be overlooked by the unwary as examples of *Pyrausta despicata* (SCOPOLI) although the moth has a different manner of flight, with which a museum biologist may be unfamiliar. GANEV (1985) reported that there were moths on the wing from April to September in 2 generations. LERAUT (2012) regards it as continuously brooded. Recent analysis shows adults flying in Bulgaria from early April (7th) to mid September (14th), with raised numbers in standard weeks 25 (18th – 24th June) and 30 (23rd to 29th July).

BESHKOV (1996) includes this species in his list of immigrant moths reported in Bulgaria during 1995, citing a single example, at Melnik, 14.IX.1995, leg. S. BESHKOV & B. GOATER. It is entirely possible that some examples are indeed primary immigrants, but the evidence available for the present suggests that when these arrive they will bolster an existing resident population.

According to LERAUT (2012) recorded larval pabula are *Cynara cardunculus* (Artichoke) and *C. scolymus* (both Asteraceae) and *Convolvulus arvensis* (Convolvulaceae)

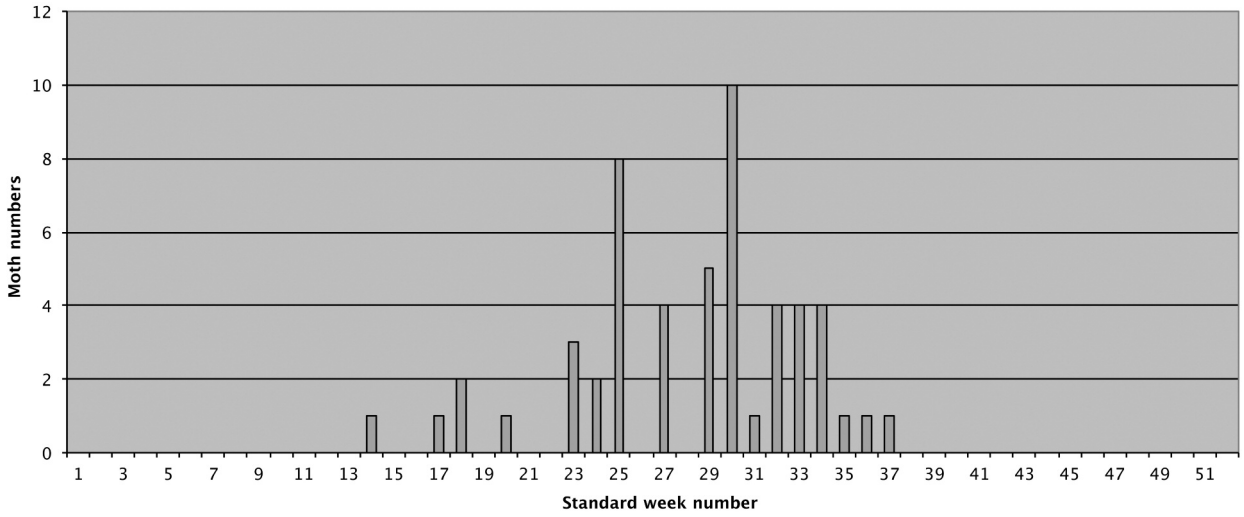


Fig. 20: Flight period by standard week number (horizontal axis) of *Aporodes floralis* HÜBNER, 1809 in Bulgaria.

6446 ***Cynaeda dentalis* ([DENIS & SCHIFFERMÜLLER], 1775)**

39 records: [1903] – 2013

The spread of dots in the distribution map suggests that this is likely to prove to be a widespread and not uncommon moth throughout most areas of Bulgaria. Adults vary in size considerably. In many species, small-sized individuals tend to appear in later generations, especially in years when an extra generation of adults is produced but this is not the case with *C. dentalis* and the first generation of the year is as likely as the last to produce small specimens. The adults fly in Bulgaria from mid June (14th) to mid October (15th) with discernible peaks from mid June (14th) to about late July (21st), from about mid August (13th) to mid September (13th) and then finally from early October (6th) to the middle of that month (15th). Flight from May to October in two generations was reported by GANEV (1985) – perhaps not exclusively using Bulgarian data.

Elsewhere in Europe, the larvae feed internally in stems of Boraginaceae, strongly favouring *Echium vulgare*, but also utilising *Anchusa* and *Onosma*.

6447 ***Cynaeda gigantea* STAUDINGER, 1890**
= *Cynaeda gigantea* (WOCKE, 1871) e.g., sensu KARSHOLT & RAZOWSKI, 1996 nomen nudum
= *Cynaeda hilariella* SCHAWERDA, 1921

6 records: 1929 – [1985]

KARSHOLT & RAZOWSKI (1996), synonymised *mendicalis* DE LATTIN, 1951 as a junior synonym of the taxon *gigantea*, noting also that ssp. *hilariella* SCHAWERDA, 1921 occurs in Europe. However, SLAMKA (2006) treats *mendicalis* DE LATTIN, 1951 as the subspecies in south-east Europe, noting also that western European records of the species, from France and Switzerland and cited by KARSHOLT & RAZOWSKI (*op. cit.*) are in error. The minimal material examined by the present author does not disagree with this, but no opinion is presented here as I have not seen sufficient specimens. The nominotypical *C. gigantea* is present in Turkey, however, and it is unclear where the interface between the two subspecies lies. Our six Bulgarian records of *C. gigantea* include only three with details of capture date and it is doubtless these that allowed GANEV (1985) to state that the adults fly from June to August. Those records are from the Balchik area, 2♂ 7.VII.1929, leg. POPESCU-GORJ 1964; Slavyanka (as Alibotush), 1.VIII.1930, leg. TULESHKOV and Pirin, 2.VI.1935, leg. TULESHKOV, the last two specimens in coll. NMNHS. Non-dated records are from Skakavitsa (Zemen Gorge), Alibotush Mountain, Kresna and Kozhuh, all given without detail in GANEV (1985).

Elsewhere in Europe, the larvae feed internally in stems of Boraginaceae, with *Echium* and *Onosma* recorded.

6464 ***Cynaeda pustulalis* (HÜBNER, 1823)**
= *Epascestria pustulalis* (HÜBNER, 1823)

33 records: 1896 – 2013

LERAUT (2012) considered the genus *Epascestria* HÜBNER 1825 to be synonymic with *Cynaeda* HÜBNER, 1825, on the basis of unspecified anatomical characters, including genitalia. Line drawings of the genitalia of both sexes were presented and

appear to support the synonymy, although it would have been helpful if a written direction to the critical differences had also been included. *C. pustulalis* is a widespread and usually quite common moth in Bulgaria, with adults noted on the wing from mid May (11th) to mid August (13th). Its distribution is probably limited only by the availability of the larval foodplants and this may restrict it to sites at lower altitude.

Elsewhere in Europe, the larvae are leaf-miners of Boraginaceae, with *Echium vulgare* and *Anchusa officinalis* currently specified.

6452 ***Tegostoma comparalis*** **(HÜBNER, 1796)**

4 records: [1967] – [1988]

This appears to be a rather rare moth in Bulgaria, with no records since at least 1988; apart from that that made in the vicinity of the Kresna Inn, in the Struma Valley, 7.VI.1986, leg. CS. SZABÓKY, the most recent date is actually considered likely to be from several years earlier. On the coast, at Nessebar, there are records for June and July in SOFFNER (1967), but no year is given in this work nor in the subsequent list by GANEV (1988) which included the same reports and added Slavyanka (as Alibotush) also without any greater detail.

Elsewhere in Europe, recorded larval foodplants are *Tribulus terrestris* (Zygophyllaceae) and *Salsola kali* (Chenopodiaceae).

6466 ***Ephelis cruentalis*** **(GEYER, 1832)**
= *Phlyctaenodes cruentalis* HÜBNER sensu REBEL, 1903

36 records: [1903] – 2015

REBEL (1903) includes "*Phlyctaenodes cruentalis* Hb." in a list of species recorded from Sliven, adding that it is on the western edge of its range in Bulgaria and that a report from Sicily was probably incorrect. This name is repeated by SLIVOV (1970) who records the same species from the Iskar Gorge. According to The Global Lepidoptera Names Index hosted by the BM(NH) at *http://www.nhm.ac.uk/research-curation/research/projects/lepindex/search/index.dsml* (accessed January 2016), HÜBNER did not apply the name *cruentalis* to any species. In the absence of evidence to the contrary, and in view of the supplementary comments by both REBEL and SLIVOV, it can only be concluded that *cruentalis* GEYER, 1832 was the species implied. KARSHOLT & RAZOWSKI (1996) include Sicily in the distribution of *cruentalis* GEYER, as well as Italy, France and the former Yugoslavia, all three of which are also to the west of Bulgaria.

This attractive crambid, which might be mistaken by the casual observer to be a member of the Geometridae, is evidently widespread across the country and in places large numbers can be caught in moth traps. However, it appears to be absent from both lowland areas and high altitude, and is found on the lower slopes of mountains throughout the entire southern upland zone as well as in the Stara Planina. Records with the altitude also recorded are very few, but suggest a range of between 500 and 800 m. is preferred. Adults have been recorded here from early June (7th) to mid August (15th), more or less continuously, but with a gap for the last two weeks of June which suggests, perhaps, that *E. cruentalis* might be bivoltine.

The larval foodplant appears to be unknown.

6468 ***Atralata albofascialis*** **(TREITSCHKE, 1829)**
= *Atralata minutalis* SPEYER, 1868

3 records: [1967] – 2007

Curiously, GANEV (1985) reports this species from the Burgas – Balchik area, but then says "Imago not recorded in Bulgaria". Perhaps he recorded it in the larval stage? Regrettably, it is not at all clear if this was his own record or just a mention of one made by another person. Until recently, the only other record for Bulgaria was from "Eminebergen, July, as ssp. *minutalis* Spr., new for Bulgaria" (SOFFNER, 1967). This relates to the Emine Cape on the Black Sea coast and in all probability it is this record to which GANEV was referring. If so, then the implication is that there was only a single national record. For clarity, I have mapped both separately in the distribution map. Since then, however, one was caught at Skakavitsa, near Razhdavitsa, 28.IV.2007, leg. B. ZLATKOV, suggesting that it is still present but simply overlooked in Bulgaria. *A. albofascialis* is itself a species worthy of discovery, but any extremely worn specimens might usefully be checked to ensure that they are not examples of *Titania ledereri* (STAUDINGER, 1870), a potentially overlooked member of the Bulgarian fauna that is present in Hungary and Romania to the north and European Turkey to the south.

Elsewhere in Europe, the larvae of *A. albofascialis* feed in the leaves and petioles of *Inula*, especially *Inula conyza* and also on *Erigeron* species (Asteraceae).

6470 *Titanio normalis* (HÜBNER, 1796)

17 records: 1897 – [1986]

This is a moth of sunny, calcareous hillsides from sea level up to approximately 800 m. altitude, although the altitudinal data is likely to be refined as additional records are made as a result of fresh field work. *T. normalis* flies by day and it is not known to be attracted to light traps. In Europe it does not extend further west than Italy or any greater distance north than about the Czech Republic, but eastwards it is widespread and often common. The adults are found in two separate generations, which are on the wing in Bulgaria from mid March (12th) early June (7th) and then again from early July (7th) to mid August (18th).

Elsewhere in Europe, the larvae are associated with *Convolvulus* species and it is likely that this is the foodplant in Bulgaria.

Tribus Eurrhypini LERAUT & LUQUET, 1983

6478 *Eurrhypis pollinalis* ([DENIS & SCHIFFERMÜLLER], 1775)

17 records: 1862 – 2006

In the old literature, *Eurrhypis guttulalis* was treated as a form of *E. pollinalis* and so records of these species are unreliable, as it is unclear to which of the two they refer. The problem was addressed by LERAUT & LUQUET (1983), who separated the two taxa and gave their distributions. These authors found that the range of *E. pollinalis* extends across Europe and although Bulgaria is not specifically mentioned, the distribution is stated to include "Yugoslavia" and to extend into Turkey and Syria. Later, LERAUT (2012) presents European distribution maps that show both species present in Bulgaria, but it is unclear whether this is based on speculation or on real data. Both species are also mapped for Bulgaria on the Fauna Europaea website (accessed January 2016). However, while both species are potentially present in Bulgaria, the allocation of almost all records to a particular taxon is impossible in the absence of the specimens. Material considered by me to be attributable to *pollinalis* DENIS & SCHIFFERMÜLLER is from the north at Ruse, 23.V.1934, leg. TSCHJERBADJIEV, in coll. NMNHS, from the south in the Rhodopes Mountains at Pashino Bordo, 1♂, 15.VI.2006, leg. B. ZLATKOV and in the west in the Vitosha Mountains at an unspecified locality, 2♂ 7.V.1953, leg. VIHODZEVSKJI, in coll. NMNHS. The following material is reported in the literature but it has not been possible to locate voucher specimens for examination: **Black Sea Coast:** Varna, 1862, leg. Lederer (Rebel, 1903; BURESCH, 1908; GANEV, 1985). **Stara Planina:** Sliven, 1862, leg. Lederer (Rebel, 1903); Iskar Gorge – Lakatnik, 19.V.1964, 1♂1♀ from the meadows above the rocks (SLIVOV, 1970); Iskar Gorge – Romcha, 1♂ at light on 18.VI.1966, leg. VALEV (SLIVOV, 1970). **Vitosha Mountains:** Sofia district, "One specimen I have kept, from Kniajevo in May " (BURESCH, 1908); Knyazhevo, Vitosha Mountains, 2.VII.1980 (GANEV, 1985); Zlatnite mostove, Vitosha Mountain (GANEV, 1985). **Rhodopes Mountains:** Rhodopes Mountains (DRENOWSKY, 1925); Rhodopes Mountains – common in clearings within coniferous forests from the end of June to the beginning of August (TULESHKOV & SLIVOV, 1975); Belite Brezi, Rhodopes Mountains, 2.VI.1981 (GANEV, 1984; GANEV, 1985; BESHKOV & LANGOUROV, 2004); Popsko, Rhodopes Mountains, GANEV (1985). **Ossogovo Mountains:** Ossogovo, 2.VII.1980 (GANEV, 1984). **Rila Mountains:** Rila Mountains (GANEV, 1985). **Slavyanka Mountains:** Alibotush Mountains (GANEV, 1985). All records are included in the distribution map for *E. pollinalis*.

[6479 *Eurrhypis guttulalis* (HERRICH-SCHÄFFER, 1848)

Unexamined material, given above, might include examples of *E. guttulalis*, although for the present this species must remain excluded from the formal Bulgarian Fauna.]

6480 *Eurrhypis cacuminalis* (EVERSMANN, 1843)

1 record: 1929 – 1929

The specimen from Slavyanka Mountain, 19.VI.1929, leg. TULESHKOV, in coll. NMNHS, is probably the same as that referred to without detail in GANEV (1985) for "Alibotush". SLAMKA (2006) lists "Romania (Alibotush Nat. Reserve)", but this is presumably a typographical error, as Alibotush (now called Slavyanka) is within the area of Bulgaria formerly included in Macedonia, nowhere near the Romanian border; I treat this as the same record as that from 1929. There do not appear to be any other Bulgarian reports of this species.

Subfamily Glaphyriinae FORBES, 1923

The Glaphyriinae properly includes members of subfamily Evergestinae MARION 1952 (M. NUSS, pers. comm., 2012). GANEV (1986b) listed 13 species of Evergestinae for Bulgaria. Additions since that summary are *Evergestis serratalis* (STAUDINGER), *Evergestis forficalis* (LINNAEUS) and *Evergestis* (*Rescovitsia*) *alborivulalis* (EVERSMANN).

6484 ***Evergestis sophialis*** **(FABRICIUS, 1787)**

48 records: 1914 – 2015

This is a widespread and usually quite common member of the Bulgarian fauna in a range of habitats from sea level up to just below 1600 m.. Meadows, woodland edges and similar ecotones, roadside verges and other habitats can be expected to support the species, adults of which can be disturbed from vegetation during the day and come to light traps in good number. Adults are recorded in Bulgaria from early May (9th) up to mid August (15th).

According to SLAMKA (1995) the larval foodplant is *Descurainia sophia* (Brassicaceae) and also species of *Sisymbrium*, although no Bulgarian data are available.

6486 ***Evergestis caesialis*** **(HERRICH-SCHÄFFER, 1849)**

3 records: 1986 – 1986

This is a rather poorly known species, with an unknown larva (though in all other European *Evergestis* species for which information exists the larvae feed on Brassicaceae). GOATER (in GOATER, NUSS & SPEIDEL, 2005) states that in Europe the adult moth flies in August, whilst GANEV (1986b) simply states " August/September". It is unclear if the latter is based on Bulgarian data; if it is, then it is implicit that GANEV was aware of the data behind the three records cited by him for the country, from Kozhuh, Kresna Gorge and Skakavitsa, but he gave no more detail. In spite of fairly intensive recording effort, there are no other reports of this moth in Bulgaria.

6488 ***Evergestis frumentalis*** **(LINNAEUS, 1761)**

37 records: 1953 – 2015

A widespread and common moth in the country, which occurs in localities from sea level up to approximately 1600 m.. Most flower-rich habitats are likely to support it, and it is recorded from the remnant steppic grassland at Kaliakra Cape to the flowery meadows on the lower slopes of the southern mountains. The adults are on the wing from the end of April (30th) to mid August (13th), more or less continuously, but rather too thinly spread to allow detection of any particular peaks. Where the information is known, the records refer to the nominotypical subspecies; a single exception is of examples from the old marble quarry at Kozhuh, 240 m., 26.V.2002, leg. C. W. PLANT, which are referable to ssp. *asiaticalis* (RAGONOT, 1894) (*vide* PLANT et al., 2003). This subspecies is reported elsewhere from Romania, European Russia, Central Asia and southern Siberia by GOATER (in GOATER, NUSS & SPEIDEL, 2005).

The larva is recorded on *Descurainia sophia*, *Sinapis arvensis*, *Isatis tinctoria* and other Brassicaceae elsewhere in Europe (GOATER in GOATER, NUSS & SPEIDEL, 2005).

6490 ***Evergestis segetalis*** **(HERRICH-SCHÄFFER, 1851)**

29 records: 1862 – 2015

The on-line map at the website of Fauna Europaea, accessed January 2016, shows that the European distribution of *E. segetalis* is limited to France and Italy in the west and to Bulgaria and Macedonia in the east. In Bulgaria, it is indeed present, but is far less frequently encountered than, for example, *E. sophialis* or *E. frumentalis*. When it is, only one or two individuals are usually present – at least in light traps. Adults are recorded in Bulgaria from early June (2nd) to the end of August (27th), apparently without discernible peaks of troughs in numbers. They evidently prefer upland biotopes, in which they have been recorded to about 2000 m. (at Orelyak). They occur also at lower altitudes, between 400 and 500 m., but only in submontane habitats and so far appear to be absent from the lowlands, including coastal sites.

The early stages are apparently unknown.

6491 ***Evergestis serratalis*** **(STAUDINGER, 1870)**

10 records: 1995 – 2014

This is a moth of the Balkans and the Crimea, but it was not noted in Bulgaria prior to 1995. However, it is likely to have been resident here much longer, perhaps confined to the Eastern Rhodopes mountain range. A collecting trip in September 1995 by B. GOATER and S. BESHKOV produced examples at Momina Skala Chalet, near Madzharovo, 10 examples 19.IX.1995, Zhaltichlskoto Dere Valley near Meden Buk village, five on 20.IX.1995, Byalo Pole (Belopolyane) village, Ivaylovgrad region, three on 21.IX.1995 and Studen Kladenets village, 180 m., 18.IX.1995 (GOATER, 1996; BESHKOV & GOATER, 2000; BESHKOV & LANGOUROV, 2004). More recently it has been recorded from the Arda River Valley at

Madzharovo, 200 m., 14.IX.2009, leg. B. ZLATKOV, Bryastovo, 1♂ 10.X.2012, leg. S. BESHKOV, Zlatolist, 1♂1♀ 15.X.2013 and 2 on 18.X.2014, leg. S. BESHKOV. The apparent geographical restriction of this moth, in Bulgaria, to the Rhodopes Mountains is both unexpected and unexplained; if real, it is likely to be linked to habitat in some way.

The moth is usually associated with scrub and open woodland, but the early stages are unknown.

6493 ***Evergestis desertalis*** **(HÜBNER, 1813)**

12 records: 1929 – 1931

Spain, Sicily, Crete, Romania and Bulgaria are the only European host countries for this species, according to the Fauna Europaea web site, accessed January 2016. The Bulgarian records are confined geographically to one small area on the Black Sea coast and temporally to the years from 1929 to 1931 inclusive. It is reported only from the Balchik area as follows: ♂♂ on 5.VII.1929, 28.VI.1930, 5.VII.1930, 6.VII.1930 & 9.VIII.1931 and ♀♀ on 5.VII.1929, 29.VI.1930, 4.VII.1931, 8.VII.1930, 11.VII.1931, 12.VII.1931 & 27.VII.1931 (POPESCU-GORJ, 1964). These data suggest that *E. desertalis* is a rare primary immigrant to Bulgaria. GOATER (in GOATER, NUSS & SPEIDEL, 2005) states that it is a resident of arid, stony deserts and that the early stages are currently unknown.

6497 ***Evergestis forficalis*** **(LINNAEUS, 1758)**

7 records: 1998 – 2015

The European distribution map shows this as a widespread species across the area, but fails to indicate that in Bulgaria it appears to be rare. It was listed, without any further data, for Boinitsa, Ruse, Shabla, Sliven and Varna by GANEV (1988) and these remained the only records for many years, leading to speculation that it had been lost from the fauna. However, its discovery at the standing stones site at Pobiti Kamani, 1♂ 14.V.2010, leg. C. W. PLANT, H. E. BEAUMONT, S. BESHKOV & B. ZLATKOV, suggests that it is still present, undetected, in some areas. Since then, it has also been found at the Central Balkan National Park, above Tazha village, 15.VIII.2011, leg. S. BESHKOV. It will doubtless be found over time in other places, but its scarcity is likely to be genuine.

The larva has been recorded elsewhere feeding on *Armoracia*, *Brassica*, *Sinapis* and *Sisymbrium* (Brassicaceae).

6499 ***Evergestis extimalis*** **(SCOPOLI, 1763)**

20 records: [1986] – 2011

Although widespread across many European countries, *E. extimalis* appears to be rather scarce in Bulgaria. Interestingly, the records are mostly from submontane habitats, all except one no higher than 600 m. and there are few records from the coast or other lowland areas, with none in this category made recently. The exception is a report from Chepelare, given in GANEV (1986b); the precise locality is not stated, but the dot on the distribution map shows clearly that the entire area is above 1200 m.. A consideration of the wide range of larval foodplants suggests that this is an unexpected situation for a resident species. Although under-recording undoubtedly affects almost all Bulgarian pyralids and crambids, a number of suitable coastal localities have been light trapped on several appropriate dates for this species since year 2002, but it has not been found. One possible conclusion that could be drawn from these data is that *E. extimalis* occurs only as a scarce immigrant in the coastal area of the country. The adult flight period is given by GANEV (1986b) as May to September, in two generations, although it is not clear whether this is based on Bulgarian data. Dated Bulgarian records from the submontane zones nevertheless do support that suggestion, falling from early May (4th) to mid June (11th) and then late July (26th) to the end of August (30th).

Recorded larval foodplants elsewhere in Europe include *Berteroa*, *Brassica*, *Diplotaxis*, *Eruca*, *Iberis*, *Raphanus, Rorippa*, *Sisymbrium*, *Teesdalia*, *Thlapsi* and *Turritis* – all of which might suggest that it is likely to thrive on most, if not all Brassicaceae.

6500 ***Evergestis limbata*** **(LINNAEUS, 1767)**

16 records: 1862 – 2013

The distribution of *E. limbata* in Bulgaria is patchy, in a wide area within which reports are very much localised. Adults are recorded in Bulgaria from mid May (11th) to mid June (18th) and then mid July (16th) to late August (21st). Two records fall after this period, on 10.IX.2012 and 25.IX.1995, but are in keeping with the flight period of May-June and then July-September given by GOATER (in GOATER, NUSS & SPEIDEL, 2005). The moth is likely to be overlooked in some places, but it is also known to migrate over considerable distances in northern Europe and has recently colonised the southern coastal area of the British Isles from Europe. On this basis, it is possible that at least some Bulgarian records are of immigrants,

although overall the recorded flight period data suggest the presence of a resident population. The situation calls for specific investigation.

In common with other species of *Evergestis*, the larvae of *E. limbata* are recorded in Europe on various Brassicaceae, with *Alliaria*, *Erysimum, Isatis* and *Sisymbrium* specifically recorded.

6501 ***Evergestis pallidata*** **(Hufnagel. 1767)**
= *Evergestis straminalis* Hübner, 1793, *sensu* Reisser & Züllich, 1934

12 records: 1934 – 2012

Nine of the available 11 Bulgarian records of *E. pallidata* include capture date. These are from Dalgopol, 1♂ 27.V.1934 and 1♂ 14.VIII.1958, leg. Zlatarsky, in coll. NMNHS; Kresna, 9.VI.1980 (Ganev, 1984); Kozhuh, 14.VI.1982 (Ganev, 1984; 1986b); Etropol Cloister, Stara Planina, 16.VIII.1982, leg. Lukov (Ganev, 1984; 1986b); Dolni Chiflik area, *Fraxinus*-dominated woodland near mouth of Kamchia River, 16.VIII.2009, leg. C. W. Plant, S. Beshkov & B. Zlatkov; Aksakovo area, damp *Alnus*-dominated woodland at roadside, 18.VIII.2009, leg. C. W. Plant, S. Beshkov & B. Zlatkov; Albena, Baltata Forest, 1♂, 22.VIII.2010, leg. B. Zlatkov & O. Sivilov and at the Ticha Dam, 1♀, 17.VIII.2012, leg. S. Beshkov. These indicate an adult flight period from the end of May (27th) to mid June (14th) and then after a significant gap from mid August (14th) to late August (22nd). Two further but undated reports are available, from Sandanski and the Kamchia River (Ganev, 1986b).

The larvae are recorded elsewhere in Europe feeding on a wide range of Brassicaceae, but have not yet been encountered in Bulgaria.

6503 ***Evergestis politalis*** **([Denis & Schiffermüller], 1775)**

2 records: [1986] – 2011

Of the two national records the first, from Balchik and reported by Ganev (1986b), is not accompanied by a date. Clearly, it must have been made in 1986 or earlier, which makes it all the more surprising that no additional detail seems to have been published in the following minimum of 25 years until the second record, at Cape Kaliakra, 1♂ 25.V.2011, leg. B. S. Larsen. The two localities are fairly close to each other on the Black Sea coast; the records suggest that this species is a primary immigrant in Bulgaria.

Goater (in goater, nuss & speidel, 2005) states that in southern Europe as a whole, the larvae feed on *Biscutella laevigata* (Brassicaceae).

6504 ***Evergestis dilutalis*** **(Herrich-Schäffer, 1848)**

1 record: 1930 – 1930

Goater (in goater, nuss & speidel, 2005) gives only Crimea (the type locality) and Romania for this species. The reference to Romania refers to a single record, from the Balchik area, 1♀, 28.VI.1930 (Popescu-Gorj, 1964); Balchik, now within Bulgaria was, at that date, within Romanian territory.

The larva is unknown.

6505 ***Evergestis subfuscalis*** **(Staudinger, 1870)**

3 records: [1986] – 2011

Bulgaria, Macedonia and Greece are the only areas of Europe occupied by this species and in Bulgaria it appears to be rare, with just three known records. Two of these, from Slavyanka (as Alibotush) Mountain and Kozhuh, near Petrich lack details and are old, but the third is recent, from Brestovitsa, 1♂ 18.VII.2011, leg. S. Beshkov, which suggests that the species may be overlooked in some places.

The early stages are unknown, as are accurate data on phenology and voltinism.

6506 ***Evergestis mundalis*** **(Guenée, 1854)**

22 records: 1982 – 2012

Care needs to be taken in separation of this species from *Evergestis aenealis* (Denis & Schiffermüller). The latter is stated to be distinguished by the colour of the vertex, but worn examples may lose their orange scales so that the head

appears concolorous with the rest of the body and the moth can then be misidentified as *E. mundalis*. *E. mundalis* is associated with rocky mountain slopes and the Bulgarian distribution reflects this. By day, adults often rest in openly on rocks where they evidently rely on crypsis to avoid predators. Elsewhere in Europe, the adults fly from April to September in 2 or 3 generations (GANEV, 1986b). For Bulgaria the data are from May to August, but significant intervals suggest there are three generations, with adults flying from early May (7th) to mid May (19th), then in mid June (17th) and finally early July (10th) to early August (7th).

The larval foodplant appears to be unknown.

6507 ***Evergestis aenealis*** **([DENIS & SCHIFFERMÜLLER], 1775)**

81 records: 1862 – 2014

Comments on potential confusion of worn examples of this species with *E. mundalis* are discussed above. *E. aenealis* is significantly more widespread, not restricted to rocky mountain slopes and found in a variety of habitats from sea level on the coast to just above 2000 m. in the Rila Mountains. Adults are said to fly from May to September in two generations (GANEV, 1986b) and according to GOATER (in GOATER, NUSS & SPEIDEL, 2005), these are from early May to late June and then mid July to early September, with the second far less common. LUQUET (1979) reports that in some regions of France one or other generation may be absent. In Bulgaria, adults are on the wing from the very end of April (30th) to late August (24th); two slight peaks in this otherwise continuous series of records are discernible. During the present century no evidence has emerged to support the notion that the second generation is any less frequent than the first. Interestingly, however, when the records are arranged by year, the dates within that year suggest that in some years there is only a single generation.

GOATER (in GOATER, NUSS & SPEIDEL, 2005) states "Larva on crucifers; rarely observed". Given that crucifers (Brassicaceae) are the larval foodplants of all *Evergestis* species in which the pabulum is actually known, that statement might be interpreted as "foodplant unknown".

6511 ***Evergestis alborivulalis*** **(EVERSMANN, 1843)**
= *Rescovitsia alborivulalis* (EVERSMANN, 1843)

6 records: 1863 – 2014

Although noted from Spain and parts of Central Europe, this is primarily an eastern species the range of which extends eastwards from the Ukraine across the whole of Russia and neighbouring countries. *E. alborivulalis* is a species of montane habitats and is therefore likely to be overlooked in some areas. REBEL (1903), discussing this species, cites the reference by LEDERER (1863) of "a female in the mountains", adding that he had not met this "very rare species" himself. LEDERER refers to collecting undertaken by HABERHAUER in 1861 and 1862 in and around Sliven and Varna, and since he specifically mentions "mountains" it is deduced that Sliven, not Varna, was the locality for this specimen. The report from Sliven in GANEV (1988) undoubtedly refers to the same. There is a specimen in NMNHS from Burgas, 19.VI.1911, leg. TSCHORBADJIEV; the report from Burgas by GANEV (1988) is likely to refer to this specimen which GANEV must have seen when working in the Museum. DRENOWSKI (1925) is the next to report the species, at 1000 m. in the Stara Planina Mountains, but fails to give greater detail. Finally from the literature, GANEV (1988) also lists it from Gramatikovo, in the Strandzha Mountains. There are two modern records, from Ada Tepe, Krumovgrad, 380 m., 1♂ 5.VIII.2010, leg. B. ZLATKOV & T. GANEVA and from Odrintsi village in the Eastern Rhodopes, 2♀ 16.VIII.2014, leg. S. BESHKOV.

The early stages are not known,

6513 ***Orenaia alpestralis*** **(FABRICIUS, 1787)**

6 records: [1903] – 2010

This high mountain moth is distributed more widely in Europe than other members of the genus *Orenaia* DUPONCHEL, and it the only one found in the Balkans. In Bulgaria, it is evidently restricted to the Pirin and Rila mountain ranges and in these zones is only found above 1100 m. altitude. Unfortunately, only two of our six records are accompanied by locality data that is more precise data than just the mountain name: these are "above Rila Monastery" at 1900 m., 13.VI.1986, leg. CS. SZABÓKY and "Ribni Ezeri Chalet" at 2115 m., 1♂ 16.VII.2010, leg. B. ZLATKOV, O. SIVILOV & R. BEKCHIEV. It is likely to be discovered at new sites in both areas at suitable altitudes so long as the food plant is available.

The larvae feed nocturnally on unspecified species of alpine Brassicaceae (LERAUT, 2014), overwintering and then feeding again from snow melt until June.

6521 ***Hellula undalis*** **(Fabricius, 1781)**

4 records: 1995 – 2009

This is a primary immigrant in Bulgaria. The four Bulgarian records are as follows: on the bank of the Byala Reka River in the Zhaltichalsko Dere Valley near Meden Buk village, Ivaylovgrad district, 150 m., 20.IX.1995, one at light, leg. B. Goater & S. Beshkov (Beshkov, 1996; Goater, 1996; Beshkov & Goater, 2000; Beshkov & Langourov, 2004); Byalo Pole (Belopolyane) village, Ivaylovgrad region, 180 m., 21.IX.1995, leg. B. Goater & S. Beshkov (Goater, 1996; Beshkov & Goater, 2000; Beshkov & Langourov, 2004); between Ilindentsi and Zandanite at 500 m., 27.VIII.2007, leg. B. Zlatkov & D. Ganeva; and at Rupite, near Petrich, 23.X.2009, leg. S. Beshkov & B. Zlatkov.

In areas to the south where it is resident, the larva feeds on various species of Brassicaceae.

Subfamily Pyraustinae Meyrick, 1890

Here, Slamka (2013) is followed in treating the Pyraustinae and Spilomelinae as separate subfamilies. Ganev (1988) listed 78 Bulgarian species of Pyraustinae (including *Euclasta splendidalis* (H.-S.) which he placed in Euclastinae). However, in this total he included *Rescovitsia alborivulalis* which has now been transferred to Glaphyriinae, thus reducing the list to 77. Species treated here as belonging to Spilomelinae must also be deducted, but since then, *Anania testacealis* (Zeller), *Palpita testalis* (Fabricius) and *Antigastra catalaunalis* (Duponchel) have been added by Goater (1996). *Nascia cilialis* (Hübner) is added in this present work and *Ostrinia nubilalis* sensu lato has been separated into two "species". The current overall total of Bulgarian Pyraustinae is consequently exactly 50. The sequence of species adopted here follows that of Slamka (2013) and differs in several respects from the provisional sequence adopted by Karsholt & Razowski (1996).

The *Loxostege clathralis* species group

There is a measure of taxonomic uncertainty concerning the three taxa *Loxostege turbidalis* (Treitschke), *L. clathralis* (Hübner) and *L. virescalis* (Guenée). They can be separated on gross morphology, but seem to have identical genitalia. Slamka (2013) asserts that they are either geographically or reproductively separated from each other, but since all three taxa are noted from each of the "classic" collecting localities of Kresna and Kozhuh in the south-western mountains of Bulgaria, the notion of geographical separation seems unlikely to be correct. *L. clathralis* and *L. virescalis* use *Artemisia* as the larval pabulum; *L. turbidalis* also utilises *Artemisia* but is also recorded on other Asteraceae. It is possible that careful analysis of appropriate sections of the mitochondrial DNA will eventually clarify this confused situation. To facilitate clarity in any future investigation, all three are treated as separate species in this present work.

6566 ***Loxostege turbidalis*** **(Treitschke, 1829)**

3 records: 1980 – [1988]

According to Slamka (2013), this species is associated with xerophilic and sandy lowland habitats. In Bulgaria, it has been noted at Kresna, 28.VIII.1980 and at Kozhuh, 11.V.1982, both given in Ganev (1984). Later, (Ganev, 1988), adds Balchik, on the coast in the north-east of the country.

Elsewhere, the larva feeds from August to April on buds, flowers and developing seeds of Asteraceae, including *Achillea*, *Artemisia*, *Aster* and *Helianthemum*, overwintering in a silk tube on the plant before pupating in spun leaves on the ground (Slamka, 2013).

6569 ***Loxostege clathralis*** **(Hübner, [1813] 1796) nec Duponchel, 1832**

8 records: 1976 – 2014

Slamka (2013) notes this species from dry habitats and steppes in Central Europe. All the Bulgarian records are, unsurprisingly, from the south-west of the country: Kresna, 17.VI.1976, "probably this species", leg. P.- J. Gyulay (Slamka, pers. comm.; Kresna railway station 6.VI.1986 & 11-12.VI.1986, Kresna Inn 7.VI.1986 and Stara Kresna 8.VI.1986, leg & coll. Cs. Szabóky; Gradeshka Banya near Kresna 1♂, 16.VI.2013, leg. S. Beshkov and Zozuch, 5 on 19.V.2014, leg. S. Beshkov.

Elsewhere in Europe, the larva is recorded feeding on flowers, buds and seeds of *Artemisia*.

6567 ***Loxostege virescalis*** **(Guenée, 1854)**
= *clathralis* Duponchel, 1832, nec Hübner, 1813

8 records: 1981 – 2010

Slamka (2013) states that this species is only known from the alpine regions of Central Europe, which he defines as being between 250 and 1200 m. altitude, and he specifically questions the validity of records of the species from south-west Bulgaria, suggesting that they might refer to *clathralis* sensu Hübner. Nuss (pers. comm.) considers that the taxon *virescalis*

is merely a form of *L. turbidalis*. It seems wise to retain it as a separately identifiable taxon in this present work so that if and when the situation is clarified the various records can be correctly allocated. Available Bulgarian records are: Kresna, 27.V.1981 (GANEV, 1984; 1988); Kozhuh, 20.V.1982 (GANEV, 1984); Struma valley, Kresna Inn, 7. vi.1986 and Kresna railway station, 11-12. vi.1986, leg & coll. CS. SZABÓKY; Sandanski (GANEV, 1988); Sestrino, Ograzden Mountains (GANEV, 1988); the old marble quarry at Kozhuh, 240 m., 26.V.2002 (PLANT et al., 2003) and 1♂, 11.V.2010, leg. C. W. PLANT, H. E. BEAUMONT & B. BENEDEK (both specimens in coll. C. W. PLANT).

The larva feeds, elsewhere in Europe, on flowers, buds and seeds of *Artemisia* (Asteraceae).

6568 ***Loxostege deliblatica* SZENT-IVÁNY & UHRIK-MESZÁROS, 1942**
= *Margaritia sulphuralis* (HÜBNER, 1813)
= *Margaritia huebneri* KOÇAK, 1980)

10 records: [1988] – 2013

All published records except two lack detail of place and date. Sandanski, Slavyanka Mountains, Kresna Gorge, Kozhuh, Lebnitsa (Ograzden Mountains), Sestrino (Ograzden Mountains) and Krichim (Rhodopes Mountains) are all given in GANEV (1988). SLIVOV (1970) adds the Iskar Gorge, 1♂ on 31.VI.1961, coll. LUKOV and PLANT et al. (2003) record it at the Skrino River, 430 m., 24.V.2002. There is one unpublished field record from the roadside just east of Paril village in the Slavyanka Mountains, 7.VIII.2013, leg. C. W. PLANT. These few records indicate a flight period from at least mid June (24th) to early August (7th); SLAMKA (2013) suggests *L. deliblatica* is bivoltine in Central Europe, from May to September.

Elsewhere, the larva feeds from a tubular web that is spun among flowers of *Artemisia* spp. in July/August and then September to April.

6574 ***Loxostege aeruginalis* (HÜBNER, 1796)**

18 records: 1862 – 2014

The distribution maps in various publications (e.g., LERAUT, 2012; SLAMKA, 2013; Fauna Europaea website, accessed January 2016) show this to be a species of southern Europe, which extends eastwards to the boundary of the Western Palaearctic in southern Russia. In Bulgaria, it is most frequent in the Rhodopes Mountains which form the national boundary with Greece, but it is also present in the Rila, Pirin, Slavyanka and associated mountain ranges in the south-west extending north in the western sector to the Iskar Gorge at Peshtera. It is, however, so far unrecorded from the lower-lying southern mountains further to the east and apart from the first national record at Sliven (LEDERER, 1863; REBEL, 1903) it has not been found in the Stara Planina of central Bulgaria. Adults are on the wing in Bulgaria from mid June (12th) to mid July (10th).

The larvae feeds from a silk web that it spins on *Artemisia* spp.

6575 ***Loxostege mucosalis* (HERRICH-SCHÄFFER, 1848)**
= *Margaritia mucosalis* (HERRICH-SCHÄFFER, 1848)

5 records: 1896 – 2011

In Europe, this species is confined to the Balkans, where it is found on the Dalmatian coast at Dubrovnik, Montenegro, Bulgaria and European Turkey. From here it extends eastwards across Asiatic Turkey via Transcaspia to central Asia. The earliest Bulgarian reference appears to be that by REBEL (1903) who refers to "Sliven, one in the entrance to the Long Valley". The precise location of the "Long Valley" is uncertain. This is probably the same as the female specimen in NHMW dated 1896. A male from Sliven in the same collection is undated, but labelled as "leg. HABERHAUER" (SLAMKA, pers. comm.). Sliven is also mentioned by GANEV (1988), without data but likely to refer to the same material. More recently, there are just three reports of *L. mucosalis*, as follows: Kresna area, 21 – 29.V.1994, leg. J. SUMPICH (F. SLAMKA, pers. comm.); Isperichovo, Besaparian Hills, 3.V.2011, leg. J. SRNKA (F. SLAMKA, pers. comm.) and at the Bukelon Fortress at Matochina, on the border with Turkey, with one to mv light, 4.V.2009, leg. C. W. PLANT & S. BESHKOV. Although Bulgarian records are confined to May, elsewhere in Europe the recorded flight period is approximately from April to September. This suggests that there is a significant measure of under-recording affecting present knowledge.

The early stages are unknown.

6577 ***Loxostege sticticalis* (LINNAEUS, 1761)**
= *Margaritia sticticalis* (LINNAEUS, 1761)

58/ records: [1903] – 2014

In northern areas of Europe, this species is known currently as a primary immigrant, but in southern areas, including Bulgaria, it is also resident. Adults are recorded from mid May (11th) to early June (8th) then after a gap early July (9th) to

mid July (18th). Another three week gap ensues, followed by adults from early August (8th) until late September (24th). During the autumn period numbers are beyond doubt boosted significantly by immigration. For example, during August 2012 light traps (overall) produced numbers in the region of 4 or 5 individuals until 20.VIII.2012 when there were 240, with 109 the next night and 200 plus on the night of 23.VIII.2012. Other immigrant moths were also recorded on the same dates. The absence of significant peaks in May and June suggests that the individuals flying at this period probably survived the winter (rather than representing fresh immigration) and so indicate permanent rather than temporary residency. As an immigrant, the moth might turn up in any location, as site ecology is of no particular consequence, and so recorded occurrences are widespread. Higher ground is likely to be no particular obstacle to immigration, with adults noted up to 1900 m., but resident populations appear to be confined to lower altitudes, up to approximately 600 m..

Elsewhere in Europe, the larva is polyphagous on herbaceous plants and low trees and shrubs, feeding in June and July then August to April, overwintering in a silk tube covered with soil grains. SLAMKA (2013) notes that in Central Europe, the second brood is only partial; available evidence suggests that this is probably not the case in Bulgaria. BURESCH (1908) in noting the species from the Sofia district, comments "This very harmful species is present in large number in the summer, especially July. Its caterpillars destroy various crops".

6580 ***Loxostege manualis* (GEYER, 1832)**
= *Boreophila manualis* (GEYER, 1832)
= *Boreophila manualis* HÜBNER, *sensu* DRENOWSKI (1925)

7 records: [1925] – [1988]

Loxostege manualis is a mountain species, found up to 2500 m. in the Alps. In Bulgaria, it appears to be confined to the higher regions of the Rhodopes Mountains, between 1650 and 2200 m. (DRENOWSKI, 1925) or 1600 and 2100 m. (GANEV, 1988). TULESHKOV & SLIVOV (1975) note single specimens (as *manualis* GAYER [*sic*]) found in alpine meadows and clearings in the higher part of the subalpine belt, from the end of June to the beginning of August. Unfortunately, since no localities are mentioned, it has not been possible to include any of the Rhodopes data in the distribution maps. GANEV (1988) also records it in the Slavyanka and Ossogovo Mountain ranges, but without any detail. The lack of recent records is almost certainly due in some part to under-recording at higher altitudes, which means that we have no records to which a specific altitude can be assigned! Perceived wisdom is that the moth is bivoltine and flies from May to September.

SLAMKA (2013) states that the larva feeds on *Achillea millefolium,* perhaps also on *Artemisia* spp.

6588 ***Ecpyrrhorrhoe rubiginalis* (HÜBNER, 1796)**

80 records: 1930 – 2014

Ecpyrrhorrhoe rubiginalis is probably ubiquitous in Bulgaria, apart from higher altitudes where the foodplants are unavailable. In the lowlands and on the lower slopes of mountains, however, it is an expected species. It is worth noting that worn examples amongst moth-trap debris readily lose the characteristic dark wing bands and are remarkably easily confused with the rather less frequent *Anania verbascalis* (DENIS & SCHIFFERMÜLLER). Examination of the genitalia may be necessary in some cases to differentiate the two, which may, of course, be present together in the same sample if both larval foodplants are nearby. Bulgarian adults are on the wing continuously from late April (30th) until late September (21st).

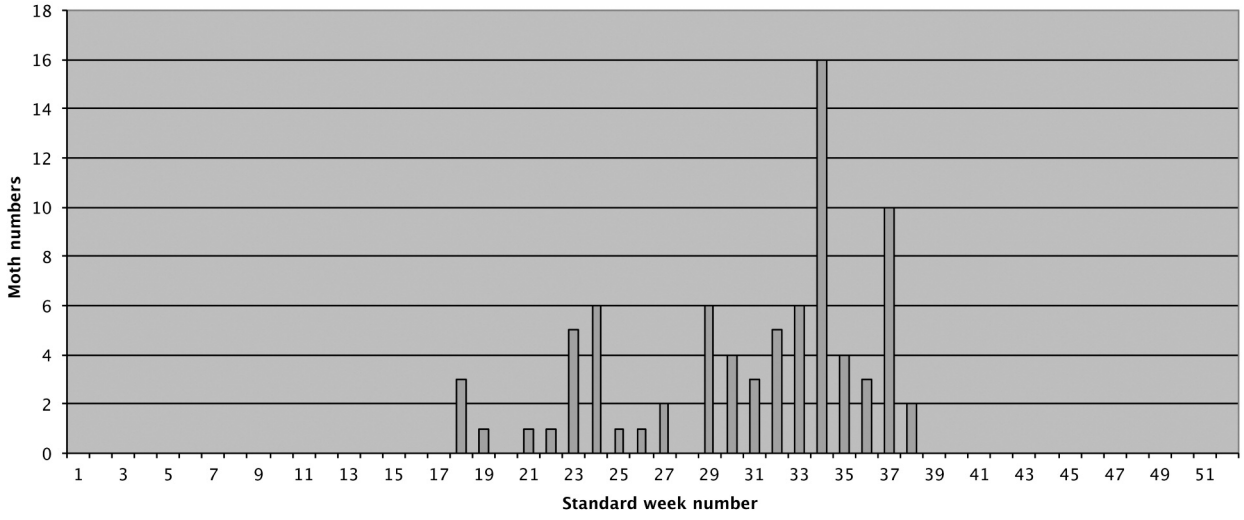


Fig. 21: Flight period by standard week number (horizontal axis) of *Ecpyrrhorrhoe rubiginalis* (HÜBNER, 1796) in Bulgaria.

Across the remainder of its European it is bivoltine. Separation of Bulgarian data into standard week numbers shows that there is a small population peak in weeks 23 and 24 (4 – 17 June) which is followed by a barely discernible gap before the prolonged appearance of adults in late summer and autumn.

The larvae feed on *Ballota nigra*, *Galeopsis tetrahit*, *Lamium* spp. and *Stachys sylvatica*, (Lamiaceae), attacking the host plant from the underside of the leaves where they are suspended in a silk web that is often barely visible.

6590 ***Ecpyrrhorrhoe diffusalis* Guenée, 1854**
= *Harpadispar diffusalis* (Guenée, 1854)

14 records: 1896 – 2014

The earliest Bulgarian record is from Sliven, 1♂, undated, but probably 1896, leg. Haberhauer (Rebel, 1903). The reference to Sliven in Ganev (1988) is treated as reference to the same specimen. From the Black Sea coastal zone there is a record of a single female in the Balchik area, 9.VII.1931 (Popescu-Gorj, 1964) and this is doubtless the same specimen as in the report for Balchik by Ganev (1988). There are also two records from the Iskar Gorge at Cherepish, 1♂ at light 19.V.1964 and 1♂ from the scrubby slopes 21.VI.1965 (Slivov, 1970). Apart from these, all Bulgarian data are from the south-west corner of the country where the species is evidently resident in the Kresna area, with records from there on 29.VIII.1982 (Ganev, 1984; 1988) and more recently from active field work near the Kresna Inn, 7.VI.1986 and by Kresna railway station, 11-12.VI.1986, leg & coll. Cs. Szabóky. There is a dated record from Kozhuh, 30.VI.1982 (Ganev, 1984; 1988) and undated references to unknown localities at Ribnik and Sestrino in the Ograzden Mountains (Ganev, 1988). A single modern record is the capture of a specimen in the Pirin Mountains at Vlahi village, 1♂ 8.V.2014, leg. S. Beshkov. Bulgarian adult flight is from early May (8th) to late August (29th), but there are too few records to allow separate generations of moths to be discerned.

The larvae feed elsewhere on *Marrubium* spp. (Lamiaceae) (Slamka, 2013).

6583 ***Achyra nudalis* (Hübner, 1796)**

8 records: 1982 – [1988]

The distribution maps in various sources show this as a southern species in Europe, with that presented by Slamka (2013) being the most accurate – the moth is associated with the Mediterranean seaboard and is only rarely found significantly inland. In Bulgaria most records are from the south-west and were summarised in Ganev (1988), though few were furnished with particular detail. The dated records are for Kozhuh, 13.VIII.1982 and Svilengrad, 28.VII.1982, leg. Kiriakov; the undated reports from the south-west are from Slavyanka (as Alibotush) Mountains, Kresna Gorge, Ribnik and Lebnitsa In the Ograzden Mountains and Pazardzik. To these can be added Sliven, in the central area and Burgas on the coast, both also listed in Ganev (1988), but likely to be considerably older. The possibility that *A. nudalis* is a rare immigrant in Bulgaria, rather than a former resident, should not be overlooked.

The larva is reported from elsewhere to feed on the leaves of *Camphorosma*, *Echium*, *Chenopodium* and *Amaranthus*.

6561 ***Paracorsia repandalis* ([Denis & Schiffermüller], 1775)**

49 records: 1931 – 2014

A fairly widespread moth, not usually present in great number at any particular site but nevertheless not regarded as rare. It is usually associated with dry, rocky sites in the lower slopes of mountains and is recorded up to 1560 m. altitude, but it is also noted at lower-lying sites, for example at Pobiti Kamani, Aksakovo where it was caught at actinic light on the exposed limestone pavement. Bulgarian adults fly from mid April (19th) to the end of September (27th) more or less continuously, with only the shortest of gaps discernible in the second and third weeks of July. This break may or may not persist as further recording is undertaken; elsewhere in Europe two generations of adults are expected, but the Bulgarian data might indicate scope for a third.

The larvae feed gregariously on *Verbascum* (Scrophulariaceae) spinning leaves and flowers together at the shoot tips to create a shelter. Larvae of the second (or third?) generation hibernate; pupation is within a rather flimsy silk web amongst leaves.

6660 ***Paratalanta pandalis* (Hübner, 1825)**

9 records: [1903] – 2010

This moth seems to be widespread and not uncommon in wooded, slightly damp sites in much of Europe, but in Bulgaria it appears to be rather local and, peculiarly, recorded mostly in upland situations. The precise location of the first record, from "Sofia – Kuru Baglar" (Rebel, 1903) is obscure, but is clearly the same place as that later given by Buresch (1908)

as “Kun-Baylar, flies in June”. The reference to “Sofia” in GANEV (1988) presumably refers to the same. GANEV also mentions Persenk mine and the Rosen Pass in the Rhodopes Mountains, the Vitosha Mountains, the Konyavo (now Konyavska) Mountains and the Ossogovo Mountain Hut without further detail. The last is perhaps the same as that from “Ossogovo, 2.VII.1980” given in GANEV (1984), in which is also included Belite Brezi, Rhodopes Mountains, 2.VI.1981. Belite Brezi Hut near Ardino is also listed in BESHKOV & LANGOUROV (2004) and finally there is a field record from the Ossogovo Mountains at Trite Buki Autotransport Chalet, 1540 m., 6.VII.2010, leg. S. BESHKOV & P. TZVETKOV.

The larva is reported from other European locations feeding on a range of plants, with *Thymus, Origanum, Teucrium*, *Solidago* and *Urtica* specifically listed. It feeds from a portable case that it constructs from fragments of leaves and in which it passes the winter months.

6661 ***Paratalanta hyalinalis* (HÜBNER, 1796)**
= *Microstega hyalinalis* (HÜBNER, 1796)

36 records: [1903] – 2015

REBEL (1903) records it in the Sofia district and BURESCH (1908) states “common in Kurn-Baylar and Low Vitosha. Flies throughout the summer”. Records are from a wide area of the country, including the Black Sea coast, although the moth seems to be fairly local within that wider distribution. GANEV (1988) gives the adult flight period as May to August, though this might not be based exclusively on Bulgarian data. SLIVOV (1970) comments, in relation to the Iskar Gorge, “I found single specimens in all parts of the gorge. In daytime the moths hide in the grass … they fly from the beginning of June to mid-August.” Records in the database for which a date is supplied suggest a Bulgarian flight period from mid June (16th) to early August (2nd), but the number of records is low.

According to SLAMKA (2013) the larva feeds in a web or gallery on the leaves of *Urtica*, *Verbascum,* including *V. thapsus*, and *Centaurea,* including *C. nigra* and *C. jacea*.

Genus *Pyrausta* SCHRANK, 1802
The subdivision of *Pyrausta* into the four subgenera *Haematia* HÜBNER, 1818, *Pyrausta* SCHRANK, 1802, *Mardinia* AMSEL, 1952 and *Trigonuncus* AMSEL, 1952 is not without its critics. There is no intention in this present work to pass an opinion on the taxonomy of this group and so the latest published opinion is followed. This appears to be that of SLAMKA (2013) who places all the species so far known from Bulgarian in subgenus *Pyrausta*, apart from *aerealis* HÜBNER, 1793, which he places in subgenus *Panstegia* HÜBNER [1825] 1816.

6597 ***Pyrausta virginalis* (DUPONCHEL, 1832)**

25 records: 1923 – 2014

This attractive moth is widespread and fairly common throughout much of Bulgaria, although it is outnumbered by the rather similar-looking *P. sanguinalis* (LINNAEUS). The two are usually separable on overall appearance, but some excessively reddened forms of *P. sanguinalis* may cause confusion. In such situations, it is worth noting that the termen of the forewings, where this abuts the terminal cilia, is red in *P. virginalis*, whilst in *P. sanguinalis* it is usually (though perhaps not always) yellow – even if the yellow is merely a single line of yellow scales separating the base of the cilia from the otherwise red terminal zone. In the case of worn examples, the basal projection on the valva of the male genitalia provides a single and easy character for separation; in the females the colliculum has a different form in each species (Fig. 22). In Europe, *P. virginalis* has a more or less southern distribution, rarely venturing further north than Slovakia in the east and central France in the west, In Bulgaria adults have been recorded reliably from early May (9th) to late May (30th) then mid July (19th) to late August (24th).

The larvae feed on various species of *Thymus* and *Salvia* (Lamiaceae).

6600 ***Pyrausta castalis* (TREITSCHKE, 1829)**

49 records: 1918 – 2014

This is another familiar species of the drier habitat zones, including the disturbed, ruderal communities of landslips and under-cliffs on the Black Sea coast as well as the semi-permanent sparsely-vegetated limestone slopes of upland areas, wherever the foodplant grows. It is recorded up to just below 2000 m. altitude (at Orelyak radio mast). Bulgarian adults fly from late May (23rd) to early July (7th) and then again from late July (23rd) to early September (5th) .

Elsewhere, the larvae feed on *Satureia montana* (Lamiaceae); in the Czech Republic *Satureia hortensis* is also used (SLAMKA, pers. comm.).

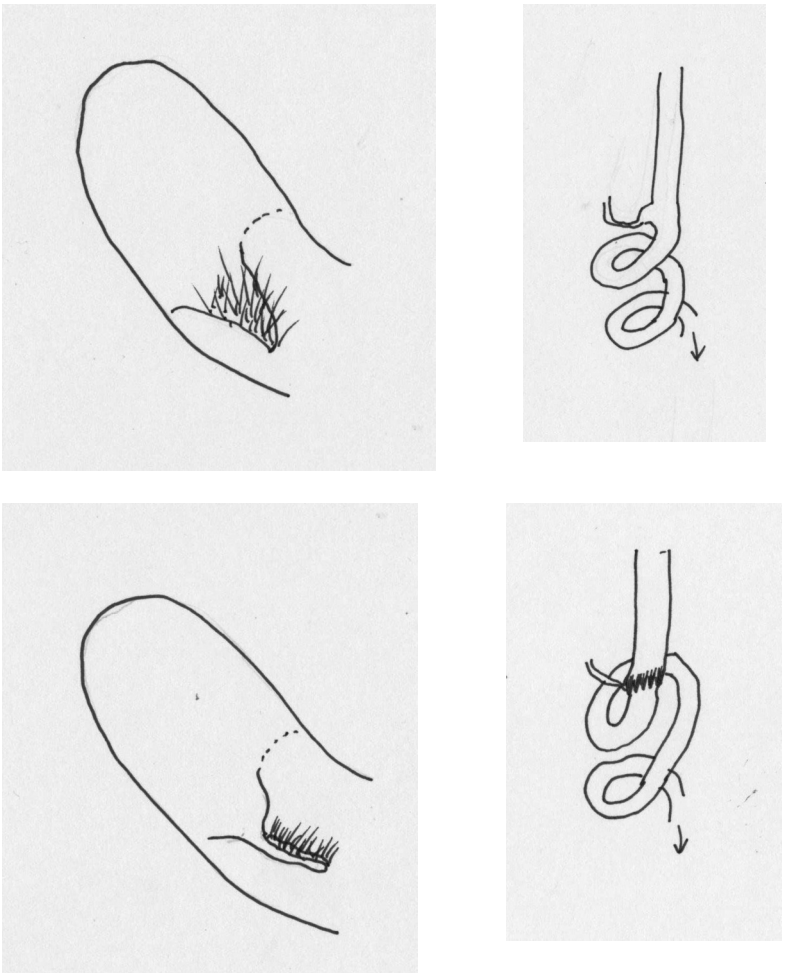


Fig. 22: Characters of the genitalia of *Pyrausta virginalis* (top) and *Pyrausta sanguinalis* (below). Left column: projection on the valva of the male. Right column: junction of the colliculum and ductus bursae of the female.

6599 ***Pyrausta sanguinalis*** **(Linnaeus, 1767)**

80 records: 1896 – 2015

P. sanguinalis extends much further north in Europe than *P. virginalis*, where it reaches Scandinavia. Some comments on separation of problem examples from *P. virginalis* are given under that species. *P. sanguinalis* is extremely widespread and usually common in Bulgaria and is to be expected at most sites where the foodplants grow. The records show that it can thrive at an altitude of at least 1980 m. (Pirin Mountains, below the radio mast at Orelyak, 8.VIII.2013, leg. C. W. Plant). In Bulgaria, adults are recorded reliably from late April (24th) to mid June (16th) then from the very end of June (30th) to late September (20th), although the second set of dates might include two generations and indicate trivoltinism.

The larvae feed on various species of *Thymus*, *Salvia* and *Rosmarinus* – possibly on other Lamiaceae.

6601 ***Pyrausta despicata*** **(Scopoli, 1763)**
= *cespitalis* ([Denis & Schiffermüller], 1775)

65 records: [1908] – 2014

The remark "Found everywhere in Bulgaria" expressed by Rebel, (1903) more or less applies today, just over a century later, and has probably been true throughout the intervening years; Slivov (1970) comments, with particular reference to the Iskar Gorge, "very common in all areas … flies during the entire warm period of the year and is attracted by electric light". Although associated with warm, sunny places, *P. despicata* is as much at home in wet sites as it is in drier places – a fact that sets it apart from several of its congeners. The adult flight period in Bulgaria is recorded from late March (29th) to early May (3rd), then early June (5th) to mid June (20th) and finally from early July (8th) to early September (5th). Later reports are from late September (26th) to early October (7th), but only exceptionally. (Ganev, 1988) states " March and then April to September in 2 or 3 generations", which is consistent with the data in the present work.

The larva feeds on various species of *Plantago*. Initial feeding takes place on the under-surface of the leaf, where the larva is supported by a flimsy silk web, and produces "windows" in the leaves. As it matures the larva eats holes in the leaf and later devours the whole leaf from the side in a more "traditional" caterpillar manner.

6609 ***Pyrausta obfuscata*** **(Scopoli, 1763)**

3 records: 1913 – [1988]

This seems to be a fairly widespread but rather local species across southern and Central Europe and it is particularly local in the Balkan Peninsula. In Bulgaria it is evidently either very rare or no longer present and there are only three known records. The earliest available record is of a single specimen labelled "Varna, 1913" [label otherwise illegible] in coll. NMNHS. From the Balchik area is 1♀ 6.VI.1932 (Popescu-Gorj, 1964), and this is presumed to be the same as the reference to "Balchik" in Ganev (1988). The third record is from the German Cloister, Lozen (Ganev, 1988), referring to the monastery mid-way between German and Lozen, to the south-east of Sofia. Interestingly, the distribution map in Ganev (1988) shows all three localities, in spite of only Lozen and Balchik being mentioned in the text. Presumably, the third map dot must refer to the Varna specimen in the Museum. Elsewhere in Europe the adults fly in two generations from May to September.

The larvae feed on the spun basal leaves of *Inula* (Asteraceae) and *Calamintha* and *Satureia* (Lamiaceae) and an effort should be made to find them in Bulgaria.

6611 ***Pyrausta amatalis*** **Rebel, 1903**

1 record: [1885] – [1885]

The single Bulgarian record of this species is found in Rebel (1903, pp. 307 – 308 & plate 3), who refers to *P. amatalis* having been obtained by him via Staudinger's Catalogue of 1886 (under the heading of *Pyrausta acontialis*), collected in present day Turkey ("Pont[us]. 8.1886, Staudinger"). The specimen has been examined by Frantisek Slamka and is a male. Rebel then mentions another example, a female captured in Sliven by Haberhauer "a few years ago". Rebel's description of the species is based on these two Syntypes, which are preserved in NHMW. Ganev (1988) also mentions "Sliven" but gives no detail; there can be no doubt that he was referring to the Haberhauer specimen. The definition of "a few years ago" is vague, but the latest possible date for the Haberhauer specimen must be 1885. There are no other European specimens; elsewhere it is recorded from Asiatic Turkey, Armenia and Syria.

6603 ***Pyrausta porphyralis*** **([Denis & Schiffermüller], 1775)**

8 records: [1903] – [1988]

This is a fairly widespread European species, although it is apparently absent from parts of the south. It is present in the eastern Balkans, from Hungary via Romania to Bulgaria, but apparently absent from Serbia, Albania and Macedonia in the west and from Greece to the south. The lack of modern records in Bulgaria may be due to under-recording, but it is possible that *P. porphyralis* might be retreating northwards with the current trend in climate change and if so, it might have already been lost from the Bulgarian fauna. With this in mind, all known records are now listed. The earliest is for "Sliven, leg. Haberhauer" (Rebel, 1903) repeated in Ganev (1988). This certainly is from the nineteenth century, but could be as early as 1862 or as late as 1898. There are undated reports for Sofia and Varna (Ganev, 1988) which also probably refer to historic data. Dated records begin with one from the Iskar Gorge at Mezdra, 1.VI.1965, 1♂ to Petromax light near the river (Slivov, 1970). Iskar Gorge (Ganev, 1988) is considered to refer to the same record. Ganev also provides the four most recent records; he fails to name the collector and it is assumed, therefore, that it was himself. The records are from Kresna, 1.IX.1980 (Ganev, 1984; 1988), the Ossogovo Mountain Hut, 30.VII.1980 (Ganev, 1984; 1988), Zemen Gorge, Konyavo (now Konyavska) Mountain, 2.IX.1980 (Ganev, 1984) and Kozhuh, 27.IX.1982 (Ganev, 1984). The flight period is given as May to September (Ganev, 1988).

The larva feeds amongst spun terminal leaves and flowers of *Origanum* and *Mentha aquatica* (Lamiaceae).

6604 ***Pyrausta aurata*** **(Scopoli, 1763)**

90 records: [1903] – 2015

This is a widespread and very common species throughout the country, though marginally less frequent than *P. purpuralis*, some forms of which can be confusingly similar. The adults fly in Bulgaria from the end of April (29th) to the end of September (29th). Analysis by standard week suggests that there are probably two generations, with the second rather more extended than the first.

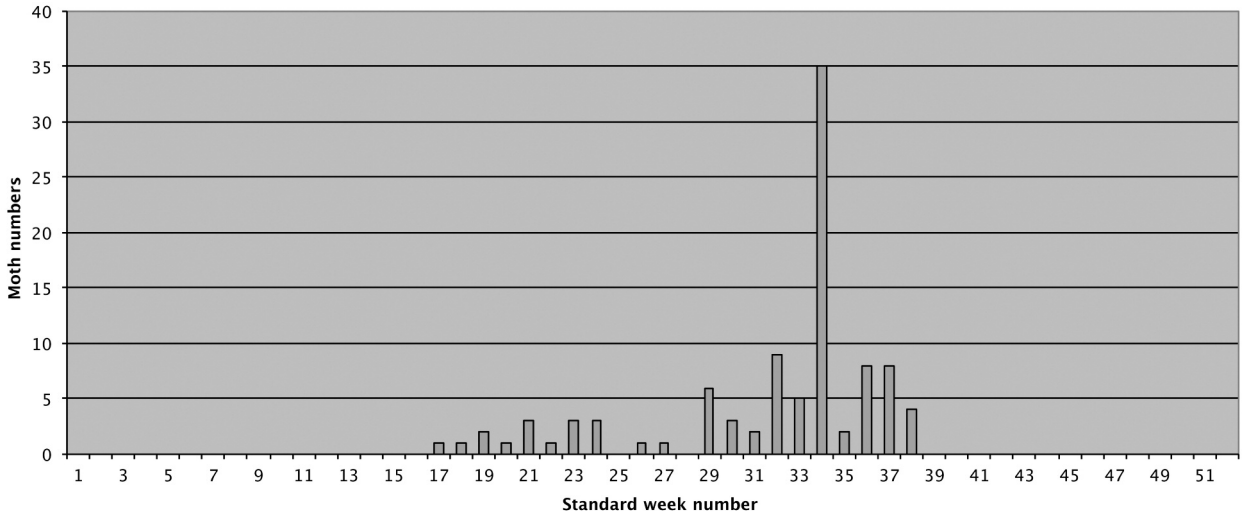


Fig. 23: Flight period by standard week number (horizontal axis) of *Pyrausta aurata* (Scopoli, 1763) in Bulgaria.

The larva feeds on a range of Lamiaceae, including *Clinopodium*, *Mentha*, *Origanum*, *Salvia* and *Thymus*, spinning terminal leaves and unopened flowers together with silk and feeding from within this shelter.

6607 *Pyrausta falcatalis* Guenée, 1854

10 records: [1903] – [1988]

This is a montane species in Europe, with the main population centres in the Alps and the Carpathian Mountain range. Within this biotope it resides in the valleys, between 500 and 2000 m. (Slamka, 2013), the adults flying in sunshine. It is poorly recorded in adjacent Serbia and Macedonia, but is present there and the mountain chain across these countries provides continuity between the Bulgarian localities and the population centre in Austria and Hungary where *P. falcatalis* appears to be more widespread. In date order, the known Bulgarian records are as follows: Rila area, a male, leg. Haberhauer (Rebel, 1903); Kozhuh, 18.VII.1918, leg. Ilitschev, in coll. NMNHS; [Cyrillic] label illegible, 850 m., 12.VII.1955, in coll. NMNHS; [Cyrillic] label illegible, 26.VII.1955, in coll. NMNHS; Kostenets, Rila Mountains, 4.VII.1982 (Ganev, 1984); Struma valley, Kresna Inn, 7.VI.1986, leg & coll. Cs. Szabóky; Dragalevski Cloister, Vitosha Mountains, (Ganev, 1988); Markovi Kladenets, Ograzden Mountain (Ganev, 1988) and Sliven (Ganev, 1988). The last few may not be in chronological sequence; that from Sliven may refer to nineteenth century recording. The reference to "Rila Mountains" in Ganev (1988) is presumed to be a reference to sites in that area already mentioned by him in Ganev (1984).

The day-flying habit and apparent avoidance of light traps perhaps indicate that it is under recorded in Bulgaria, and it could easily be re-discovered, in the Rila and Pirin Mountains at least, by daytime collecting during July.

The larva feeds on *Salvia glutinosa* (Slamka, 2013).

6605 *Pyrausta purpuralis* (Linnaeus, 1758)

113 records: [1903] – 2015

This is a widespread, potentially ubiquitous species in Bulgaria, common and often abundant. It would be unusual for *P. purpuralis* not to be represented in a moth trap in appropriate season. The adults fly in Bulgaria from late April (22nd) to late September (28th) in at least two generations, probably with a third in favourable years, peaking around the first week of May, the second third of June and the middle of August. Ganev (1988) reported it up to an altitude of 1500 m.; this present work extends that to just a fraction below 2000 m..

According to Slamka (2013), the larva feeds on *Mentha*, *Origanum*, *Prunella* and *Thymus* (Lamiaceae) as well as on *Plantago* (Plantaginaceae).

6606 *Pyrausta ostrinalis* (Hübner, 1796)

19 records: 1940 – 2014

Examples of this moth can easily be overlooked as *P. purpuralis* if the underside is not examined, but meticulous care has been taken in examination of all available material and it really does seem to be a scarce and local species in Bulgaria. In

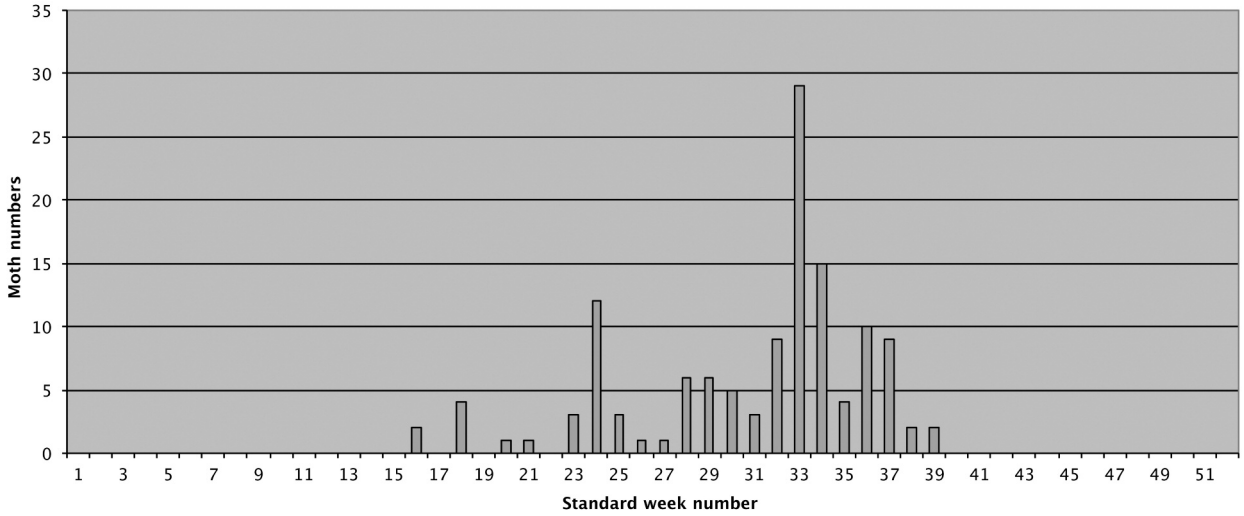


Fig. 24: Flight period by standard week number (horizontal axis) of *Pyrausta purpuralis* (LINNAEUS, 1758) in Bulgaria.

general, it is scarcer in the south of Europe than it is in central and northern areas. However, in Bulgarian localities where it occurs it can be common and it has been found up to an altitude of 1550 m.. The adult flight period in this country is recorded as being from mid April (15th) to mid June (15th) and then mid July (22nd) to late August (29th), suggesting two generations, although the sample is rather too low for statistical accuracy.

The larva feeds on *Mentha*, *Nepeta* (Lamiaceae) and *Plantago* (Plantaginaceae); it is likely that other Lamiaceae might be used in some places.

6613 ***Pyrausta nigrata*** **(SCOPOLI, 1763)**

7 records: [1908] – 2010

This is a surprisingly scarce moth in Bulgaria. The earliest report is from the Vitosha Mountains: "several from Vitosha, above Dragilevski. Flies in April" (BURESCH, 1908). This is presumed to be the source of "Dragalevski Kloster, Vitosha Mountains" in GANEV (1988). It was reported again from the same relatively isolated mountain range fifty years later at an unspecified location at 450 m., 15.VI.1953, leg. VIHODZEVSKJI, in coll. NMNHS. It is also known from the Rhodopes Mountains at Snezhanka summit, 1800 m., 6.VII.1968, 1♂1♀ and V. Kolarov [Golyam Beglik] Dam, 25.VII.1967, 2♂♂ (TULESHKOV & SLIVOV, 1975) – once again the non-detailed report in GANEV (1988) presumed to refer to the earlier reports. From the Pirin Mountains it is recorded from Orelyak, 1520 m., 13.VI.2010, leg. S. BESHKOV, from the Stara Planina at Trastena Mountain Hut (GANEV, 1988) and from the western mountains at Dragoman Marsh, 19.VIII.2009, leg. C. W. PLANT, S. BESHKOV & B. ZLATKOV. GANEV (1988) states that adults fly from April to August in two generations, presumably basing his statement at least in part on the Bulgarian data. Available dated records are from mid June (13th) to mid August (19th) and with the BURESCH report providing the April evidence, the opinion of GANEV was evidently correct.

According to SLAMKA (2013) the larvae feed on *Mentha*, *Origanum*, *Salvia* and *Thymus* (Lamiaceae).

6595 ***Pyrausta cingulata*** **(LINNAEUS, 1758)**
= *nigralis* FABRICIUS, 1781 nec HÜBNER, 1793
= *Pyrausta rectefascialis* TOLL, 1936

48 records: [1903] – 2014

Care should be taken to distinguish older literature records of this species from those of *P. nigralis* sensu HÜBNER 1793 (see species entry 6614, below). The present species is widespread and common on calcareous substrates throughout Bulgaria, wherever the limestone surfaces or has an affect on the overlying Drift geology. The moth appears to be equally at home at lower level sites on the chalky outcrops along parts of the Black Sea coast as it is on higher ground and in Bulgaria it is noted up to an altitude of 1800 m.. Adults are evident from early May (2nd) to late September (28th). This is in keeping with the suggestion of May to June and July to September, in two generations (GANEV, 1988), but the number of records is too small to allow peaks in the data to be resolved. *Pyrausta rectefascialis* TOLL has been regarded as a separate species by many authors, but is currently regarded as only a form of *P. cingulata*.

Only eight examples of the taxon *rectefascialis* are known from Bulgaria, and these are listed separately here so that they can be specifically identified if required at a later date: Sandanski, 29 – 31.VIII.1978, leg. J. SKYVA; Byalo Pole

(Belopolyane) village, Ivaylovgrad region, 180 m., 21.IX.1995, five (Goater, 1996; Beshkov & Goater, 2000; Beshkov & Langourov, 2004); Sakar Mountains, Bukelon Fortress near Matochina, 22.VII.2011, leg. S. Beshkov; Sliven (Ganev, 1988); East Stara Planina Mountains at Dropla village, 21.VIII.2011, leg. S. Beshkov, Strandzha Hills at Malko Turnovo, 13.VI. 2015 and 15.VI.2015, leg. N. Greatorex-Davies and Eastern Rhodopes at Dolno Cherkovishte, 16.VI.2015, leg. N. Greatorex-Davies.

The larvae feed on leaves of various species of *Thymus* and of *Salvia* (Lamiaceae) (Slamka, 2013).

6614 ***Pyrausta coracinalis* Leraut, 1982**
= *nigralis* Hübner nec Fabricius, 1781

5 records: 1977 – [1988]

Care should be taken to distinguish older literature records of this species from those of *P. nigralis* sensu Fabricius, 1781 (see species entry 6595, above). *P. coracinalis* is apparently rare in Bulgaria, now either absent or overlooked but most probably the latter. It is a mountain species found in the Alps and in the Balkans, apparently up to 2300 m. (Slamka, 2013). As the only entirely black *Pyrausta* species it is immediately recognisable, but its small size and preference for higher altitudes, where it flies in the sunshine on sparsely-vegetated slopes, are likely to render it hard to see in the first place. Bulgarian records are from the area of the Rila Monastery, 24.V.1977, leg. J. Skyva and elsewhere in the Rila Mountains at Borovets (Ganev, 1988) in the Rhodopes Mountains at the Persenk mine, near Chepelare, 13.VII.1981 (Ganev, 1984; 1988), in the Vitosha Mountains at Bistritsa and in the Ograzden Mountains at Ribnik (Ganev, 1988).

The larvae feed on Lamiaceae, including *Calamintha*, *Clinopodium*, *Origanum*, *Salvia* and *Satureia*.

6616 ***Pyrausta (Panstegia) aerealis opacalis* (Hübner [1813] 1796)**

15 records: [1903] – 2010

Balkan examples of this species conform to subspecies *opacalis* Hübner. The nominate subspecies *aerealis* Hübner, 1793 is present in Western Europe. Subspecies *opacalis* is associated with open habitats in the mountains of the Balkan Peninsula, where it is found up to 2200 m. Slamka (2013), although records presently in the Bulgarian database extend only as far as 2000 m.. Most high mountain areas of Bulgaria are likely to support this moth. At Rila, a male at 1800 m. near the summit of Eleni, on 25th July (Rebel, 1903) is the earliest record and is repeated in Ganev (1988). Drenowski (1925) reports it from both the Rila and the Rhodopes Mountains, between 1400 and 2000 m., the latter also repeated in Ganev (1988). More recently in the Rhodopes it was "common in dry sunny meadows in mountain and submontane zones in June and July" (Tuleshkov & Slivov, 1975) and then at Rosen Pass, 1♂ 13.VII.1981 (Ganev, 1984). It was also recorded again in the Rila range on 10.VIII.1956, leg. Karnozitzki specimen without further data in NMNHS and more recently near the Rila Monastery, 1900 m., 13.VI.1986, leg & coll. Cs. Szabóky. The Pirin Mountains are mentioned first by Ganev (1988) who notes it there between 1400 and 2000 m. and there are subsequent records from Spanno Pole, at 1800m, 17.VII.1933, in coll. Reisser (F. Slamka, pers. comm.), at Kostenets, 1♂ 4.VII.1982 (Ganev, 1984), at Banderitsa Chalet, between 1800 and 2000 m., 26 – 30.VII.1986, leg. J. Skyva and then at Yavarov Chalet, 1730 m., 17.VII.2010, leg. B. Zlatkov O. Sivilov & R. Bekchiev. Ganev (1988) also mentions the Ossogovo and Slavyanka Mountains and the latter range provides our most recent record, from above Livade village, 1925 m., 1♂ 23.VII.2010, leg. B. Zlatkov & O. Sivilov. Two other records are worthy of mention. A single moth in coll. NMNHS from an unknown locality on 16.VIII.1932 is labelled as leg. Buresch. A report from the Kresna Gorge (Ganev, 1988) is at a surprisingly low altitude and may be a misidentification by whoever captured it.

The larva feeds on the basal leaves of *Gnaphalium*, *Helichrysum*, *Thymus*, *Scrophularia* and perhaps *Artemisia* (Slamka, 2013).

6619 ***Uresiphita gilvata* (Fabricius, 1794)**
= *Pyralis polygonalis* [Denis & Schiffermüller], 1775 (synonymy)
= *polygonalis* auct. nec [Denis & Schiffermüller], 1775 (misidentification)
= *limbalis* auct. nec Linnaeus, 1767 (misidentification)

16 records: 1928 – 2013

This is a known migrant and although a resident species in some of the warmest parts of Europe, it is generally encountered only as an immigrant away from such places. This is probably the situation in Bulgaria. Although parts of the Black Sea coast have potential to support a breeding population, the moth is not one that is regularly encountered as one might expect of a resident species. Nevertheless, careful searching of potential foodplants in coastal areas, especially the landslips and other undercliff habitats in the north, might be worthwhile. All known records are listed here, in chronological order: Iskar Gorge – Svoge (Drenowski, 1931), repeated without the data by Ganev (1988); Iskar Gorge – Rebrovo (Drenowski,

1931), repeated without the data by GANEV (1988); Iskar Gorge – Lakatnik, 1♂ on 31.VII.1965, coll. Lukov (SLIVOV, 1970), repeated without the data by GANEV (1988); Balchik area, ♂♂ 22.VII.1928 & 25.VII.1928, ♀ 24.VII.1928 (POPESCU-GORJ, 1964) – Balchik (GANEV, 1988) probably refers; East Rhodopes Mountains, Dolna Cherkoviste village (the Iron Bridge), 19.VII.2011, leg. S. BESHKOV; Belasitsa Chalet at 614 m., 1 on 8.VII.2010, leg. S. BESHKOV; Dyulimo, 7 to light on 19.VIII.2012, leg. S. BESHKOV; Karadere Beach, 1 on 21.VIII.2012, leg. S. BESHKOV; and Zlatolist, 1♂ 15.X.2013, leg. S. BESHKOV. Undated reports in the database are Belasitsa Mountains (GANEV, 1988); Sestrino, Ograzden Mountains (GANEV, 1988); Veliko Tarnovo, Strandza Mountains (GANEV, 1988); Burgas (GANEV, 1988) and Euxinograd (GANEV, 1988).

These data combine to show adults between early July (8th) and mid August (21st) and then in mid October (15th). The larva feeds on *Chamaecytisus*, *Cytisus*, *Genista* and *Ulex*. It should be noted that some researchers regard this taxon as a complex that might include more than one species.

6620 ***Nascia cilialis*** **(HÜBNER, 1796)**

1 record: 2011 – 2011

The single Bulgarian record is from the Black Sea Coast near Albena, Baltata Forest, 1♂, 22.VII.2011, leg. B. ZLATKOV & O. SIVILOV, gen. det. and in coll. C. W. PLANT. *N. cilialis* is otherwise absent from the southern Balkans, although it is reported from Asian Turkey. The species is not known to be a migrant, but long-distance movement of some kind seems a likely explanation for the Bulgarian record. Suitable breeding habitat might exist in the northern part of the Bulgarian Black Sea coastal area and would be worth investigating.

The larva feeds on *Carex* and *Cladium mariscus* (Cyperaceae), but personal observations in England suggest that these plants must be growing in a mix that includes *Phragmites*.

6623 ***Sitochroa palealis*** **([DENIS & SCHIFFERMÜLLER], 1775)**

48 records: [1903] – 2014

From the earliest reports from Sofia (REBEL, 1903) and from Vitosha, leg. Drenowski (REBEL, 1903) to the present day this has been a widespread and usually common species throughout Bulgaria where there is a calcareous influence on the flora. It is common along the coast, and inland it extends up the flower-rich mountain slopes to approximately 800 m.. Adults are recorded in Bulgaria from early June (8th) to late August (22nd), with a peak of numbers in late July and throughout August.

The larva feeds in the spun flower-head of white-flowering Apiaceae, favouring *Daucus carota* in Britain and much of Western Europe, but also utilising *Foeniculum*, *Heracleum* and *Peucedanum*.

6624 ***Sitochroa verticalis*** **(LINNAEUS, 1758)**

102 records: [1903] – 2014

Sitochroa verticalis is another widespread and rather common moth in Bulgaria. However, it is less dependant on a calcareous geology than *S. palealis*, and is usually found where grasses dominate, but do not obliterate, the dicotyledonous

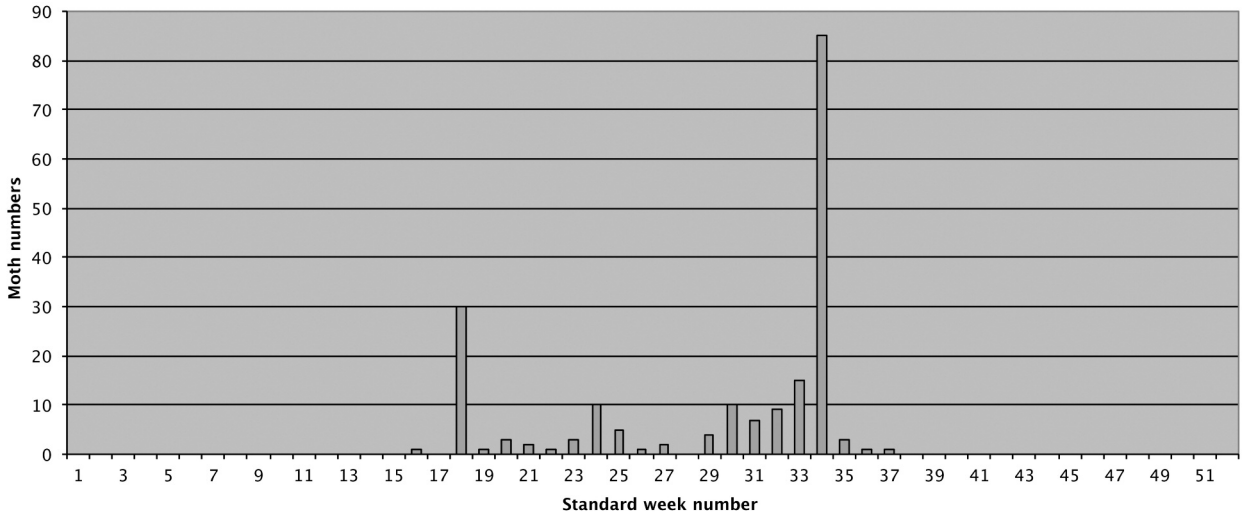


Fig. 25: Flight period by standard week number (horizontal axis) of *Sitochroa verticalis* (LINNAEUS, 1758) in Bulgaria.

vegetation. Thus, we have reports such as "very common in meadows near rivers, dry meadows and crops of forage plants. The moths fly in June and July and are attracted to light" (SLIVOV, 1970) in relation to the Iskar Gorge. It extends to higher altitudes than *S. palealis*, with the highest record in Bulgaria at 1400 m. in the Rhodopes Mountains (TULESHKOV & SLIVOV, 1975).

Bulgarian adults are on the wing from late April (22nd) to early September (3rd) with a single later record on 14.IX.2010 on the coast at Durankulak (leg. C. W. PLANT) – a date that coincided with immigration by some other species of Lepidoptera. Plotting the dated records by standard week number shows the species to be trivoltine, with adult numbers peaking in early May, late May and June and then late August. Confusion is possible with some examples of *Ostrinia nubilalis* and *Mecyna flavalis*, amongst others. However, a glance at the under-surface of the wings provides ready separation, those of the present species being adorned with black lines.

The larva feeds on a wide range of grassland plants, including *Atriplex*, *Centaurea*, *Cirsium*, *Cytisus, Rumex* and *Urtica*.

6626 ***Euclasta splendidalis*** **(HERRICH-SCHÄFFER, 1848)**

30 records: 1925 – 2014

Bulgaria probably supports the main population in Europe of this striking moth. Eastwards, it extends across Turkey and Transcaucasia, but westwards it is found no further than the shores of the Adriatic Sea, just reaching the eastern-most tip of Italy. In the west of Europe, it is replaced by the superficially similar but slightly smaller *E. varii* (POPESCU-GORJ & CONSTANTINESCU, 1973). It is most abundant along the northern part of the Black Sea coastline in Bulgaria, particularly on the landslips and undercliff habitat. It is regrettable that much of this area is now under threat of development for the leisure industry. The west and south-west also support the moth, though it is not seen here in such high number – perhaps a reflection of larval foodplant density. It is possible that autumn numbers might occasionally be boosted by immigration which, if true, might imply that the raised numbers in the coastal zone are not associated with residency. The tenuous evidence for this lies in the capture at light of a significantly large number of individuals of this species on the coastal sand dunes, and in the associated marshy woodland to the rear of the dunes, at Dolni Chiflik, 16.IX.2010, leg. C. W. PLANT, A. J. PICKLES, S. BESHKOV & B. ZLATKOV; this event coincided with the arrival of a large number of known primary immigrants of several species. The adults fly in Bulgaria from mid May (20th) to mid June (14th) after which there is a short gap with no records before adults appear again from early July (2nd) through to the end of August (29th) but with a few more records from the middle of September (11th) to the end (27th).

The larvae are reported in association with *Periploca graeca* (Apocyanaceae) (POPESCU-GORJ & CONSTANTINESCU, 1977; SZÉKELY, 2006).

6641 ***Sclerocona acutella*** **(EVERSMANN, 1842)**

11 records: 1977 – 2011

Of the eleven Bulgarian records of this wetland moth, four are from the far south-west near Petrich at Kozhuh – a site that does not, at first glance, appear to have habitat features that would support the species. Among the remaining sites, Madzharovo also appears unsuitable. It is not beyond possibility that suitable breeding sites are available in both areas, but the records might indicate a species that, although resident, is also something of a wanderer. If "wandering" equates to dispersal then it is the females that would be expected to turn up at light traps in apparently unsuitable locations; this emphasises the importance of recording sex wherever this is known. The Bulgarian records are: Kozhuh, 20.V.1982 & 18.IX.1982, leg. SPEIDEL (GANEV, 1984; 1988); The old marble quarry at Kozhuh, 1♂ 26.V.2002 (PLANT et al., 2003); by the bridge across the Arda River near Madzharovo (BESHKOV & LANGOUROV, 2004); Arkutino, 30.V.1977, leg. J. SKYVA; Bolata, 1♀ 28.VII.2009, leg. B. ZLATKOV; Kavarna area, west of Topola, coastal cliffs and ledges, 18.VIII.2009, leg. C. W. PLANT, S. BESHKOV & B. ZLATKOV; Dyavolska Reka River marsh, 1 on 13.VIII.2010, leg. B. ZLATKOV & O. SIVILOV; Kozhuh, 1♂ 11.V.2010, C. W. PLANT, H. E. BEAUMONT & B. BENEDEK; Novo Hodzhovo Marsh, 1♂ 20.VII.2010, leg. B. ZLATKOV, O. SIVILOV & R. BEKCHIEV and Atanasovsko Lake, 30.VII.2011, leg. S. BESHKOV.

The larvae feed on *Phragmites*. However, in the Netherlands they also feed on *Zea mays*; if that is also the case in Bulgaria, it might provide an alternative explanation of the records made away from wetland habitat.

6647 ***Ostrinia palustralis*** **(HÜBNER, 1796)**

4 records: [1863] – 2014

LEDERER (1863) notes that HABERHAUER frequently found the larva in stems of *Rumex* at Varna, and reared adults. This is repeated in REBEL (1903) and is probably also the source of "Varna" in GANEV (1988), who also records "Balchik" and "Kresna Gorge" without giving any information; these are the sources of the dots on the distribution map in SLAMKA (2013). There were no other Bulgarian records known until a female captured at the Ropotamo Reserve on 30.VII.2014, leg. S.

Beshkov in coll. C. W. Plant. The moth is otherwise more or less absent from the Balkan Peninsula; the range of *O. palustralis* extends eastwards from Central Europe across Russia and Asia Minor.

The larva feeds internally in the roots and lower stems of broad-leaved species of *Rumex*, including *R. aquaticus*, *R. crispus* and *R. hydrolapathus* (Polygonaceae).

6645 *Ostrinia quadripunctalis* ([Denis & Schiffermüller], 1775)

2 records: 1975 – 1986

This appears to be an extremely rare species in Europe; some writers have recommended it for "fully protected" status in Europe; others have suggested that an understanding of its habitat requirements and their targetted conservation might pay greater dividends. Its range includes the Alps, the mountains of northern Hungary and Slovakia and the mountains of southern Bulgaria westwards into Macedonia and Montenegro. There are only two Bulgarian records, but one is fairly recent, perhaps suggesting that *O. quadripunctalis* still occurs here. It has been encountered at Asenovgrad, 1.VI.1975, leg. J. Skyva and between Melnek and Rosen, 8.VI.1986, leg & coll. Cs. Szabóky.

The foodplant of the larva is unconfirmed.

6649/a *Ostrinia nubilalis* (Hübner, 1796) & *O. scapulalis* (Walker, 1859) = *maysalis* Leraut, 2012.

Molecular analysis suggests that "*Ostrinia nubilalis*" might be a complex of two species. Frolov et al. (2007) reserve the name *O. nubilalis* (Hübner, 1796) for the true European Corn-borer, a familiar and problematic pest species, but treat those whose larvae feed on *Artemisia vulgaris* as belonging to a separate species, *O. scapulalis* (Walker, 1859). Leraut (2012) discusses this issue, albeit rather briefly, and concludes that the name *O. nubilalis* (Hübner, 1796) should be applied to the species that feeds on *Artemisia* (calling it the Mugwort Borer) and that the correct name for the species that feeds exclusively on Maize (*Zea mays*) is *O. maysalis* Leraut, 2012 (European Corn-borer). This view has not received universal acceptance; Slamka (2013) convincingly reinstated the name *O. scapulalis*, but applied it to the Maize-feeding taxon. Separation of the two on gross morphology is extremely problematic. Although consistent differences in subjective matters such as the depth of colour might be discernible if long series of mounted specimens are compared side by side under the same light source in a museum, this is of little help to the field entomologist and there are few, if any, differences in the genitalia of the two taxa. Ideally, all available Bulgarian material should be assembled and examined against museum series before any conclusions are drawn. It is important that voucher specimens are retained for all future Bulgarian records of this possible species pair. No attempt has been made to separate the two taxa in this present work and the distribution map shows all records. In many cases, specimens are not immediately available. Rebel (1903) observes that it is "probably anywhere in Bulgaria where corn is grown; the larva lives in the stems" but this statement represents supposition rather than fact. Rebel adds that it "also feeds in Millet (*Panicum*), Hemp (*Cannabis*) and Hop (*Humulus*)" but would not have been aware, at that date, that two species were involved. The aggregate is widespread across Bulgaria and is without doubt significantly supported by immigrations. Nevertheless, although there are no direct larval foodplant records for Bulgaria, the appearance of the moth at some Black Sea coast sites represents a pattern that is probably indicative of residency.

It should also be noted that the foodplant of "*nubilalis*" is not exclusively *Artemisia vulgaris*. This is the preferred (perhaps exclusive) foodplant of the species in England, which was colonised by immigration from Europe, but according to Slamka (2013) *Rumex* is preferred in Denmark, whilst over 220 different foodplants are recorded overall.

6643 *Psammotis pulveralis* (Hübner, 1796)

23 records: 1861 – 2014

All Bulgarian material so far examined is referable to subspecies *grisealis* Staudinger which replaces the distinctly more pink-coloured nominate subspecies *pulveralis* Hübner in the Balkans. *P. pulveralis* is a widespread species in Europe, usually associated with damp habitats where the foodplant is able to grow. Some Bulgarian localities for it fit this description, such as in the *Fraxinus*-dominated woodland near the mouth of the Kamchia River, 1♀ 16.VIII.2009, or the pools behind the coastal sand dunes at Dolni Chiflik, 1♀ 13.VIII.2009 (both leg. C. W. Plant, S. Beshkov & B. Zlatkov). However, the arrival of the moth at light traps in some other places is unexpected. Many seem to reflect an upland association, such as in the Zemen Gorge, Konyavo (now Konyavska) Mountain, 26.VI.1979 Belasitsa, 16.VI.1982, near the Persenk mine, Rhodopes Mountains, 5.VI.1981, all reported by Ganev (1984) or Markovi Kladenets, Ograzden Mountains, 1450 m. and Ossogovo Mountain Hut, 1640 m. (Ganev, 1988). The moth is evidently present up to 1800 m. in Bulgaria. An unexpected record was of a male in a light trap on the roof of the American University at Blagoevgrad, 30.VII.2013, leg. P. Waring & C. W. Plant. The adults fly from mid June (5th) to early July (7th) and then after a break from the end of July (30th) to mid August (23rd).

The larva feeds on *Mentha* and *Lycopus* spp. (Lamiaceae), skeletonising the leaves before making holes in the stems.

Genus *Anania* Hübner, 1823

Leraut (2000) synonymised a number of apparently unrelated genera within the single genus *Anania*, as follows:

***Anania* Hübner. 1823**
= *Eurrhypara* Hübner, [1825] 1816
= *Perinephela* Hübner, [1825] 1816
= *Phlyctaenia* Hübner, [1825] 1816
= *Algedonia* Lederer, 1863
= *Ebulea* Doubleday, 1849
= *Opsibotys* Warren, 1890
= *Mutuuraia* Munroe, 1976

Subsequently, Leraut (2005b) made additional changes in this area of pyraustine taxonomy. This present work does not wish to challenge these decisions, but nevertheless the original genera are identified here, as subgenera, to facilitate future interpretation and the sequence of species remains based on them.

Subgenus *Anania* Hübner, 1823

6656 *Anania funebris* (Ström, 1768)

4 records: 1862 – [1988]

This distinctive moth has been found on just four occasions in Bulgaria, and not at all in recent years. Only the earliest, from "Sliven, leg. Haberhauer (Rebel, 1903) can be dated – to either 1861 or 1862. The others must be prior to the date of publication – Alibotush Mountains, Ahtopol and the Batchkovo Cloister in the Rhodopes Mountains are listed by Ganev (1988), who also notes the flight period as June to August; presumably this is based on information known to him. Although the moth is rather striking when in the hand, it is entirely possible to overlook examples flying about the foodplant in dappled sunshine, and the lack of recent records does not necessarily indicate that this moth is extinct in Bulgaria.

The larva feeds on *Solidago virgaurea* (Asteraceae) but as Slamka (2013) points out, it is likely to have a different, as yet unknown, foodplant in the subalpine zone where *Solidago* may be absent.

6655 *Anania verbascalis* ([Denis & Schiffermüller], 1775)

50 records: 1863 – 2014

This appears to be a widespread and common species throughout much of Bulgaria, though care should be taken not to confuse it with worn examples of the equally common *Ecpyrrhorrhoe rubiginalis* in which the normally characteristic dark wing bands have been lost. *A. verbascalis* appears to shun the higher mountain sides; it extends up the lower slopes to about 800 m., but is far more frequent in lowland zones. Adults are recorded from early May (4th) to mid September (14th) more or less continuously, but with records concentrated into three groups, in May and early June, late June to the end of July and then mid to late August.

The larva feeds on *Verbascum*, *Scrophularia* and *Teucrium*, from a web spun on the under surface of the leaves.

Subgenus *Perinephela* Hübner, [1825] 1816

6629 *Anania lancealis* ([Denis & Schiffermüller], 1775)

16 records: 1977 – 2014

Damp woodland below an altitude of about 500 m. is the favoured habitat of this species and the available records show it to be present in both the south-west and in the coastal zone. Although large tracts of the countryside are unlikely to support the moth it is nevertheless likely to be considerably under-recorded in areas where suitable habitat does exist. On the basis of Bulgarian records only, the adults fly from late May (22nd) to late August (29th); a gap in July suggests it is bivoltine.

The larva feeds on the flowers and developing seeds of *Dipsacus*, *Eupatorium*, *Lycopus*, *Stachys* and *Senecio* and perhaps also on other plants.

Subgenus *Phlyctaenia* Hübner, [1825] 1816

6631 ***Anania coronata* (Hufnagel, 1767)**
= *Phlyctaenia sambucalis* ([Denis & Schiffermüller], 1775)

40 records: [1903] – 2012

This is another widespread and generally common moth in Bulgaria, distributed in open woodland, scrub and similar habitats. It is most frequent in the lowlands, but extends up to about 1600 m. altitude, the two highest records being from the Chavdar Chalet above Bunovo at 1270 m., 14.VIII.2010 and the Ossogovo Mountains above Trite Buki, in a forest clearing at 1540 m., 6.VII.2010, both leg. B. Zlatkov. Adults can be disturbed from bushes by day, but also come readily to light traps. They are on the wing in Bulgaria from late May (25th) to mid June (18th) and then again in July (6th until 15th) and finally from early August (10th) to early September (9th); this is indicative of trivoltinism, but the July peak might merely be an anomaly arising from under-recording; elsewhere the species is bivoltine.

The larva favours various species of Convolvulaceae, but is fairly polyphagous and has been recorded on *Sambucus*, *Syringa*, *Fraxinus*, *Ligustrum* and other shrubs (Slamka, 2013).

6632 ***Anania stachydalis* (Germar, 1821)**

10 records: [1908] – 2012

The habitats occupied by this species differ rather little from those of the similar-looking *A. coronata*, but the present species is far less frequently encountered and on the basis of the records available prefers lower altitudes, with none above about 900 m.. The earliest report is from the Sofia district, "several in Sofia in July" (Buresch, 1908). There is material in NMNHS from Sandanski, 29 – 31.VIII.1978, leg. J. Skyva, and Slivov (1970) notes it in the Iskar Gorge at "Svoge, 23.VII.1963, 1♂ to Petromax light near the river". Recent records are from Dolni Chiflik coastal sand dunes, 1♀ 13.VIII.2009, leg. C. W. Plant, S. Beshkov & B. Zlatkov, Golyamo Belovo Yadentsi at 873 m.. 6♂ 15.VII.2011, leg. S. Beshkov, Chukovets 1♂ 23.VIII.2012, leg. S. Beshkov and near the Ticha Dam, Shumen, 1♂ 17.VIII.2012, leg. S. Beshkov. There are undated records from the Vitosha Mountains, Veliko Tarnovo and Burgas (Ganev, 1988).

The larva feeds on *Stachys sylvatica* and other species of *Stachys* (Lamiaceae) (Slamka, 2013).

Subgenus *Mutuuraia* Munroe, 1976

6638 ***Anania terrealis* (Treitschke, 1829)**

9 records: 1979 – 2014

This is a relatively scarce species in Bulgaria. Elsewhere in Europe, *A. terrealis* inhabits woodland edges and open habitats, especially if scrub-invaded and extends some distance up mountain slopes. In Bulgaria, it might be overlooked to some extent, but there are, nevertheless, rather few records. These are from: Bunkera, in the Vitosha Mountain, 9.IX.1979, Kresna, 20.VII.1982 and Kyustendil, 24.VIII.1982, all given in Ganev (1984 & 1988). It has also been collected in the Melnik-Rosen area, 8-9. vi.1986, leg & coll. Cs. Szabóky and more recently on a long-neglected arable field by a woodland edge, on the roadside east of Paril village in the Slavyanka Mountains, 1♂ 7.VIII.2013, leg. C. W. Plant and in the Pirin Mountains at Vlahi village, 1♂ 8.V.2014, leg. S. Beshkov. There are undated records from Sliven, the River Lukovitza, near Asenovgrad and Belogradchik (Ganev, 1988). The six dated records span the period from early May (8th) to early September (9th). Elsewhere, the moths fly from May to September in two generations (Ganev, 1988).

The larva feeds on *Solidago virgaurea*, but according to Slamka (2013) is also reported on *Aster* species (Asteraceae) elsewhere in Europe.

Subgenus *Ebulea* Doubleday, 1849

6652 ***Anania crocealis* (Hübner, 1796)**

36 records: 1965 – 2014

An unfortunate duplicate use of the specific epithet "*crocealis*" by two different authors for two different species of Crambidae has the potential to cause confusion. The present species should not be confused with *crocealis* Duponchel (1834) which is currently placed in synonymy with *Pleuroptya balteata* (Fabricius, 1798) in the Spilomelinae (see below).

Anania crocealis is a characteristic member of the open-ground fauna in Bulgaria and it is moderately widespread although seldom encountered in large numbers. Although the foodplants are widespread, they are most prevalent in ruderal herb communities that develop on disturbed ground and as a result the moth is more often encountered in lowland settings. However, it is not completely absent from higher altitudes; for example it is present at Trigrad in the south-west at 1280 m., but is certainly less often encountered in such places. In Bulgaria, adults fly from the start of June (1st) until early September (9th), but are most frequent from mid July to the end of August.

The larva feeds on *Inula conyza* and *Pulicaria dysenterica* (Asteraceae).

6653 ***Anania testacealis*** **(Zeller, 1847)**

1 record: 1995 – 1995

A single adult of this apparently scarce species was captured at the Stara Kresna Railway Station, 13.IX.1995, by day (Goater, 1996; Beshkov & Goater, 2000). This is apparently the only Bulgarian record. According to Slamka (2013) it is a southern species in Europe, but reports extend down the Dalmatian coast and into Greece, so an appearance at Kresna is not totally unexpected. Targetted searching might produce further captures, although it is unlikely that *A. testacealis* will prove to be either widespread or common in Bulgaria.

The larva feeds on "a wide range of low plants including chicory" [*Cichorium* spp.] (Leraut, 2012).

Subgenus *Eurrhypara* Hübner, [1825] 1816

6658 ***Anania hortulata*** **(Linnaeus, 1758)**
= *Eurrhypara urticata* (Linnaeus, 1761)

21 records: [1903] – 2012

This is a surprisingly local and usually scarce species in Bulgaria. However, most moth recording expeditions in Bulgaria have targetted montane areas and costal cliffs, along with others that support natural/semi-natural habitats, and there are rather few records of any kind from the disturbed and eutrophic habitats associated with human settlement. A switch in emphasis might show this moth to be rather more widespread than the data indicate; Ganev (1988) recorded it as present "throughout Bulgaria". It has been recorded up to an altitude of 1400 m. in the Rhodopes Mountains.

The larva feeds mainly on *Urtica dioica*, but also on *Convolvulus*, *Marrubium, Mentha*, *Ribes*, *Stachys* and other plants elsewhere in Europe.

Subgenus *Opsibotys* Warren, 1890

6563 ***Anania fuscalis*** **([Denis & Schiffermüller], 1775)**

18 records: 1862 – 2014

Forest clearings are the expected places where this moth might be found, but it also occurs along woodland rides, neglected field edges adjacent to woodland and various other similar types of woodland edge habitat. Adults are noted in Bulgaria from late May (22nd) to mid June (18th), but there are two outside this frame. One of these is for early August (10th) and is in keeping with expectations for a species that is probably bivoltine, but there is a specimen in coll. NMNHS labelled with the very early date of 3.II.1901. It is possible that this is a labelling error.

The larva feeds on the flowers and developing seeds of *Melampyrum* and *Rhinanthus* (Scrophulariaceae).

Subfamily Spilomelinae Guenée, 1854

Until now, there has been no specific count of Spilomelinae in Bulgaria in the literature, because the species were formerly included within the Pyraustinae. Since the general summaries of Pyraustinae in Ganev (1984; 1988), Beshkov & Langourov (2004) added *Udea numeralis* (Hübner) to the Bulgarian fauna, Goater (1996) added *Antigastra catalaunalis* (Duponchel) and *Hodebertia testalis* (Fabricius, 1794) and Beshkov (2015) added *Cydalima perspectalis* (Walker, 1859). In the present work, three more species are added, namely *Spoladea recurvalis* (Fabricius, 1775), *Hydriris ornatalis* (Duponchel, 1832) and *Metasia rosealis* Ragonot, 1895, thus bringing the overall total of Spilomelinae known from Bulgaria to 39 species.

6531 ***Udea ferrugalis*** **(Hübner, 1796)**

132 records: [1903] – 2014

This small moth is nearly ubiquitous in Bulgaria, where it is common, if not abundant. It extends some distance up into the mountains. In the Rhodopes, it was "very common on grassy slopes and clearings up to 1400 m. from May to the middle of August" (Tuleshkov & Slivov, 1975) and more generally "throughout Bulgaria up to altitude 1700 m." (Ganev, 1988). In the present work, this is extended further still to 1900 m. above the Rila Monastery. The adults fly from early May (3rd) to mid November (12th), more or less continuously. Ganev (1988) noted it from April to October in three generations, but peaks are not discernible in the dataset which is, in any event, significantly distorted by immigration so that the resident population cannot be separated out. Migrations appear to occur mainly in the autumn, when, for example, hundreds appeared at light traps amongst the coastal sand dunes at Dolni Chiflik on 16.IX.2010, during a large immigration of many other Lepidoptera species, leg. C. W. Plant, A. J. Pickles, S. Beshkov & B. Zlatkov.

The larva is polyphagous and recorded host plants elsewhere include *Aster*, *Centaurea*, *Cirsium*, *Echium*, *Eupatorium*, *Fragaria Lycopus*, *Mentha*, *Ribes* and *Stachys*.

6533 ***Udea fulvalis* (HÜBNER, 1809)**
= *Udea prunoidalis* STAUDINGER, 1879

22 records: [1902] – 2004

Apparently a scarce species, at least in light trap samples, *U. fulvalis* is nevertheless fairly widespread across the southern and eastern areas of Bulgaria, where most recording has been concentrated. Within this range, however, it appears to be local, and never encountered in large number; adults have been recorded from early June (7th) to late July (23rd). The first record is from Sofia (DRENOWSKI, 1902; REBEL, 1903); later, also from the Sofia district, BURESCH (1908) notes "I have one var. *prunoidalis* STDGR. from Kniajevo, July 1904". From the Balchik area, POPESCU-GORJ (1964) notes 1 ♂ 20.VII.1931 and 1♀ 8.VII.1929, adding that he also found it as f. *prunoidalis* STAUDINGER, ♀♀ 5.VII.1929, 29.VI.1930, 1.VII.1930, 2.VII.1930 & 18.VII.1931.

The larva is recorded feeding on *Ballota*, *Nepeta*, *Salvia* (Lamiaceae) and *Silene* (Caryophyllaceae) and possibly also uses other plants.

***Udea fimbriatralis* (DUPONCHEL, 1834) and *Udea languidalis* (EVERSMANN, 1842)**
The validity of *Udea languidalis* as a full species is an unresolved issue. LERAUT (2012) considers it to be an eastern subspecies of *U. fimbriatralis*; the situation is summarised in Slamka (2013). For this present report I have seen only the Sliven material mentioned below for "*fimbriatralis*" and the Balchik material for "*languidalis*" and am unable, therefore, to form an advised opinion. For the time being, therefore, it seems sensible to retain the two as separate entities so that future research can be better facilitated.

6535 ***Udea fimbriatralis* (DUPONCHEL, 1834)**
= *fimbriatalis* auct., misspelling

6 records: 1910 – [1988]

Three examples from Sliven, 6.VII.1910, 26.VII.1910 & 5.VIII.1913, in coll. NMNHS are presumed to be the source of the report from Sliven given without detail in GANEV (1988). Similarly, two specimens from Malaschewska, Krupnik, 800 m., 4.VII.1917, leg. ILITSCHEV, in coll. NMNHS are presumed to be the source of the undated report from "Krupniski Balkan" in GANEV (1988), in which there are also undated reports from Kresna Gorge and an unspecified location in the Pirin Mountains.

The larva feeds on *Taraxacum* species (Asteraceae).

6534 ***Udea languidalis* (EVERSMANN, 1842)**

10 records: [1986] – 2009

Only two reports are accompanied by date: these are from the Melnik – Rosen area, 8. vi.1986, leg & coll. CS. SZABÓKY and from the Balchik area, coastal cliff ledges with ruderal flora and scrub, 1♂ 14.VIII.2009, leg. C. W. PLANT, S. BESHKOV & B. ZLATKOV. The other eight records are all undated in GANEV (1988) and are from Jakovo, Sestrino and Lebnitza in the Ograzden Mountains, Kresna Gorge and Harsovo in the Pirin Mountains, at the Ossogovo Mountain Hut, at Kozhuh and away from the south-west at Sliven.

The larval stage appears to be unknown.

6538 ***Udea lutealis* (HÜBNER, 1809)**
= *Pionea lutealis* HÜBNER, 1809

25 records: [1903] – 2014

This is a very common and widespread species in northern areas of Europe, but it seems to be absent from most of Iberia, Italy and the Balkans. It is probably at the very edge of its range in Bulgaria and there are no records further south in either Greece or European Turkey. DRENOWSKI (1925) records it between 1000 and 1700 m. in the Stara Planina, Vitosha, Rila and Rhodopes Mountains. The dates of these records are uncertain, but the fact that DRENOWSKI recorded the species at Vitosha is given earlier by REBEL (1903) and it is unclear whether DRENOWSKI saw the species in the years after 1903 or if his 1925 paper refers only to earlier observations. The reference in GANEV (1988) to "Rhodopes Mountains, between 1000 and 1700 m." is surely a reference to DRENOWSKI. The absence in the database of reports from lowland areas is perhaps significant. Current data extend the altitude reached by this moth to 1900 m. near the Rila Monastery, 13.VI.1986, leg & coll. CS. SZABÓKY and at Orelyak, 6.VIII.2010, 2♂♂2♀♀, leg. S. BESHKOV. There is also a report from 1800 m. at Vichren

(Pirin), undated, but probably 1976, leg. J. Skyva. Tuleshkov & Slivov (1975), in discussing the Rhodopes Mountains, regarded it as a species of "meadows of the mountain and 'submountain' [submontane] in June and July. The records show that Bulgarian adults fly from mid July (16th) to late August (28th), but with reports outside this main period in mid June (13th) and mid September (12th). The preferred habitat seems to be woodland clearings and rides, wood margins and open, flower-rich grasslands that are also scrub-invaded.

The larva is polyphagous, with *Carduus, Centaurea*, *Plantago*, *Ranunculus*, *Rubus*, *Rumex* and *Tussilago* all recorded in Slamka (2013).

6541 *Udea prunalis* ([Denis & Schiffermüller], 1775)

14 records: [1903] – 2011

U. prunalis is, like *U. lutealis*, predominantly a north European species. In the Balkans it is widespread, but very local, particularly in Bulgaria. It was first noted here from Sofia (Rebel, 1903) – repeated in Ganev (1988). Records that include dates are from Dalgopol, 1♂ 11.VII.1955, leg. Zlatarsky in coll. NMNHS, Kostenets, 10.VII.1980, leg. Kiriakov (Ganev, 1984; 1988), Rosen Pass, Rhodopes Mountains, 10.VIII.1981 (Ganev, 1984), Bunkera, Vitosha Mountain, 17.VIII.1981 (Ganev, 1984; 1988) and the West Rhodopes Mountains above Golyamo Belovo, Yadenitsa, 873 m., 15.VII.2011, leg. S. Beshkov. From the Rhodopes Mountains, the reference to "single specimens found on damp grassy slopes up to 1200 m. in June, July and September" given in Tuleshkov & Slivov (1975) can be reliably attributed to the early 1970s, but reports from Svilengrad and Sliven (Ganev, 1988), Svoge and Rebrovo in the Iskar Gorge (Drenowski, 1930; Slivov, 1970) and Nessebar, September (Soffner, 1967) [to which "Nessebar" in Ganev (1988) probably refers], are all undated. Available data imply a flight period from early July (10th) to early August (10th), but June to October given by Slamka (2013) is likely to be nearer the mark.

The larva is polyphagous, but may have a preference for trees and bushes rather than herbs. Slamka (2013) lists *Corylus*, *Betula*, *Populus*, *Ulmus* and Rosaceae as well as *Vaccinium*, *Stachys* and *Lamium*.

6557 *Udea olivalis* ([Denis & Schiffermüller], 1775)

17 records: 1965 – 2006

The first record of this species in Bulgaria was made as late as 1965, which is rather surprising for a species that is unmistakeable in appearance. This record was made in the Iskar Gorge at "Svoge, 1♂ at Petromax light", 27.VI.1965 (Slivov, 1970). In the Rhodopes Mountains it was "common in clearings and scrub vegetation in the subalpine zone in June and July" (Tuleshkov & Slivov, 1975); this information can be attributed, reliably, to the early 1970s and is the likely source of "Rhodopes Mountains between 1000 and 2000 m." (Ganev, 1988). Ganev (1984) gives dated records from Panitchischte, 17.VII.1980, Ossogovo, 30.VII.1980, Chepelare, Rhodopes Mountains, 20.VIII.1980, Skakavitsa, Rila Mountains, 16.VII.1980, Rosen Pass, Rhodopes Mountains, 13.VII.1981, Kostenets, 4.VII.1982, Izgrev, Rhodopes Mountains, 31.VII.1982 and Progled village, Rhodopes Mountains, 4.VIII.1982. One more dated record is from the West Rhodopes, Mantaritsa Reserve at Pashino Bordo, 2.VIII.2006, leg. B. Zlatkov. Remaining records are all without date and are from the Rila Monastery and Borovets (Soffner, 1967) and the Slavyanka Mountains, Markovi Kladenetz, Ograzden Mountains, Martinova Tchuka and Sliven (Ganev, 1988). Using the minimal flight data available, Bulgarian adults are on the wing from late June (27th) to early August (4th), but the true flight period is likely to be longer.

The larva is polyphagous on low plants, the known list of which includes *Geum*, *Humulus*, *Lonicera*, *Rubus*, *Sambucus*, *Senecio*, *Stachys* and *Urtica*.

6548 *Udea rhododendronalis* (Duponchel, 1834)

9 records: [1903] – 2010

This is a montane species, which is found in three disjunct regions of Europe in the Pyrenees, the Alps and the Balkan Mountains. The first Bulgarian record is of specimens from the Rila Mountains, between 1700 and 2600 m. (Drenowski, 1925 – repeated in Ganev, 1988). Both reports may well refer to the pair captured at approximately 2100 m. in the Rila Mountains by Rebel (1903). Elsewhere, the moth is reported from the Slavyanka and Vitosha Mountain ranges, the latter at the summit of Cherni Mountain and also at unspecified places in the Stara Planina, between 1600 and 2000 m. (Ganev, 1988). More recent reports are, happily, accompanied by capture dates. These are from the Pirin Mountains, between 1800 and 2000 m., 26 – 30.VII.1996, leg. J. Skyva, at Banderishko Ribno, by the lake, 2000 m., 1♂ 18.VII.2010, leg. B. Zlatkov, O. Sivilov & R. Bekchiev and at Tiha Rila, 2050 m., 1 (no abdomen), 16.VII.2010, leg. B. Zlatkov, O. Sivilov & R. Bekchiev. A single male from the Balchik area, 26.VII.2014, leg. S. Beshkov, named by me, is omitted from the database. Balchik is at sea level and is a most unlikely station for this species; the specimen is regarded as a contaminant from a sample from a different (unknown) site packed in the same container for posting to England.

The larva feeds on Asteraceae, with *Taraxacum*, *Cirsium* and *Matricaria* listed by Slamka (2013).

6549 ***Udea austriacalis* (HERRICH-SCHÄFFER, 1851)**

7 records: 1899 – 1979

This is an alpine species, found between 1100 and 2750 m. in the Pyrenees, Alps and Balkan Mountains (SLAMKA, 2013). In Bulgaria, reports are from the Vitosha, Ossogovo, Rila and Slavyanka mountain ranges in the south-west and also to the Stara Planina in the central zone. Interestingly, apart from a single record from Ossogovo in 1979, given below, there do not seem to be any modern records of *U. austriacalis* in Bulgaria; reports published during the 1980's almost certainly refer to data gathered at the start of the twentieth century. From the Vitosha, the first mention is simply "Vitosha, 1899, leg. DRENOWSKI" (REBEL, 1903), followed by "Vitosha, up to 2000 m. in July" (BURESCH, 1908). A later reference, simply made to "Vitosha Mountains" by DRENOWSKI (1925) must be treated as a repeat of his 1899 record unless investigation proves otherwise, and the final mention of "Vitosha Mountains, at 2000 m." (GANEV, 1988) is presumably a repeat of data already mentioned. For the Ossogovo range, a record from "Ossogovo, 18.VI.1979" (GANEV, 1984) is the only Bulgarian record with a date attached! Presumably "Ossogovo Mountains, between 1500 and 2200 m." (GANEV, 1988) is a repeat of the same. For the Rila Mountains we have "a female sent by HABERHAUER" [to REBEL] (REBEL, 1903) and later REBEL himself recorded it in the Rila between 1700 and 2400 m. during 1902 (REBEL, 1903). In 2013, F. SLAMKA (pers. comm.) examined a female specimen labelled as collected by REBEL at 1300 m. in the Rila Mountains at end of July 1902 – perhaps this refers to the same record? Further references to, simply, "Rila Mountains" are to be found in Buresch (1908) and Drenowski (1925), and that in GANEV (1988) to "Rila Mountains, between 1600 and 2300 m." is thought to refer to reports already mentioned. For the Slavyanka range there is only "Alibotush Mountains" (GANEV, 1988). Finally, for the Stara Planina we have "Sliven a male in the long valley during 1902" (REBEL, 1903), Sliven (BURESCH, 1908) and Stara Planina, between 1500 and 2100 m. (DRENOWSKI, 1925, repeated in GANEV, 1988). It is also listed by SAKALIAN (2000a) for the Central Balkan National Park in the general area of Botev Peak, but no date is indicated. It would be well worth searching for this species, by day and night, in the alpine meadows above 1000 m. altitude in all the Bulgarian mountain ranges; it may well be present still.

The larva feeds on *Plantago major* (SLAMKA, 2013).

6550 ***Udea uliginosalis* (STEPHENS, 1834)**

5 records: 1915 – 2013

U. uliginosalis is another mountain moth species, in mainland Europe associated with sites from 1400 to 3200 m. above sea level but, peculiarly, in Scotland at altitudes of only around 200 m. (SLAMKA, 2013); this latter is at odds with GOATER (1986) who notes the species "in grassy places in the mountains above 350 m.". In Bulgaria, it is only recorded from the Pirin and Rila ranges. From the former, at Bansko, it was collected at 1900 m. on 9.VII.1915 and at 2500 m. on 16.VII.1915 (specimens in coll. NMNHS). The name of the collector is unknown, but the record is without doubt the same as that given by GANEV (1988) for "Pirin Mountains, between 1600 and 2500 m.". From the Rila Mountains, it was noted "between 1500 and 2600 m." (DRENOWSKI, 1925) and a few years later from Musalla, 24 – 26.VII.1930, leg. H. ZERNY). During the International Congress of Lepidopterology held in Bulgaria during 2013, delegates visited the central area of the Rila Mountains and this resulted in the capture of *U. uliginosalis*, 1♂ at 2150 m., 1.VIII.2013, leg. O. KARSHOLT, showing that the species is still in residence. There can be little doubt that targetted searching of high altitude meadows, higher than a minimum of 1500 m., both by day and at night, is likely to prove the presence of this and many other species of Crambidae that have not been seen in Bulgaria for many years.

The larva is recorded on *Senecio* in Europe, but in Scotland it must have another foodplant, as adults fly at sites where *Senecio* is absent (GOATER, 1986; HECKFORD, 2011). The foodplant in Bulgaria is unknown.

6553 ***Udea nebulalis* (HÜBNER, 1796)**
= *Edea nebulalis* (HÜBNER, 1796)

5 records: 1928 – 1988

The first Bulgarian record is from Veliko Tarnovo, 11.VII.1928, in coll. NMNHS. The collector is unknown but is almost certainly TULESHKOV, although the record is apparently not included in his review of moths of that area (TULESHKOV, 1930). GANEV (1988) mentions the "Stara Planina, between 500 and 1500 m." and although he gives no details it can be fairly safely assumed that this refers to the report from Botev peak area of the Central Balkan National Park, given in SAKALIAN (2000a) as *Edea nebulalis* (Huebner, [1796]). Further to the east, it is reported from Razgrad (GANEV, 1988) and in the south-western mountains it is known from Slavyanka (labelled as Alibotush), 16.VII.1929, leg. TULESHKOV (in coll. NMNHS) and listed from Borovets in the Rila range (GANEV, 1988).

The larva feeds on the leaves of various plants, including *Bellis* and *Taraxacum* (Asteraceae), *Campanula* (Campanulaceae) and *Geranium* (Geraniaceae) (SLAMKA, 2013).

6551 ***Udea numeralis*** **(HÜBNER, 1796)**

1 record: 2004 – 2004

The single Bulgarian record is from near the bridge over the River Arda at Madzharovo, 1♂ 17 – 23.V.2004 (leg. S. BESHKOV & H. BECK, specimen in coll. S. BESHKOV). The distribution map in SLAMKA (2013) shows this species to be at the eastern limit of its range in the Balkans, although there are reports from both Greece and Asiatic Turkey.

The larva feeds on Asteraceae; the record might indicate a cryptic resident population, but might equally indicate movement/migration.

6667 ***Pleuroptya ruralis*** **(SCOPOLI, 1763)**
= *Haritalia ruralis* (SCOPOLI, 1763)
= *Sylepta ruralis* (SCOPOLI, 1763)

119 records: [1903] – 2014

GANEV (1988) regarded this moth as present "throughout Bulgaria up to 1200 m.", adding that the flight period was June to September. No recent data has altered that general situation at 2016 and the moth is likely to be found in most areas; Bulgarian adults are reported from early June (7th) to late September (29th) with occasional examples in late October (21st in 1981 and both 21st & 22nd in 2003). Unfortunately, the tendency of collectors not to record altitude data alongside location and date has made it impossible to refine the altitudinal data beyond a simple statement that recent information does not contradict the original figures.

The main larval foodplant is *Urtica dioica* and this is likely to be the reason why the moth extends into urban areas more than many other species. However, *Atriplex*, *Chenopodium*, *Filipendula*, *Humulus*, *Ribes* and *Spiraeae* are also given as foodplants and in semi-natural, calcareous sites the adult female is likely to be less choosy over where eggs are laid.

6668 ***Pleuroptya balteata*** **(FABRICIUS, 1798)**
= *Pleuroptya crocealis* (DUPONCHEL, 1834)
= *Pleuroptya aurantiacalis* (FISCHER VON RÖSLERSTAMM, 1840)

7 records: [1903] – 2010

LERAUT (2005a) regarded *crocealis* DUPONCHEL as distinct from *balteata* FABRICIUS and in his subsequent discussion on distribution (LERAUT, 2012), he considers that the European species is referable to *crocealis* DUPONCHEL with *balteata* FABRICIUS occurring from India to Japan and elsewhere. SLAMKA (2013) found that the differences between the two were not constant and synonymised them, with the name *balteata* FABRICIUS having priority. All Bulgarian material is treated here as *P. balteata*. The seven records are as follows: Varna, 1♀ 26.VIII.1934, in coll. NMNHS; Kresna, 23.VIII.1980, det. SPEIDEL & 27.V.1981 (GANEV, 1984; 1988); Kozhuh, a male between 5 & 15.VII.1983 (GANEV, 1984; 1988); Struma valley at Kresna Inn, 7.VI.1986. leg & coll. CS. SZABÓKY; Sliven by HABERHAUER [1861 or 1862] (REBEL, 1903; GANEV, 1988) and most recently the Novo Hodzhovo Marsh, 20.VII.2010, leg. B. ZLATKOV, O. SIVILOV & R. BEKCHIEV. *P. balteata* is a species of warm and dry habitats in the extreme south of Europe.

According to Slamka (2013), the larva feeds in spun leaves of *Pistacia terebrinthus* (Pistachio), *Cotinus*, *Rhus* and *Anacardium occidentale* (Cashew), as well as *Quercus serrata* and *Castanea* spp.

6672 ***Mecyna flavalis*** **([DENIS & SCHIFFERMÜLLER], 1775)**

11 records: 1965 – 2012

Of the ten records listed here, three are certainly correct and the remaining seven are likely to be so, but the discovery of *M. balcanica* SLAMKA & PLANT has thrown this section of genus *Mecyna* into chaos. Material that requires urgent checking by genitalia examination is from Sandanski, 25 – 27.V.1977, leg. J. SKYVA; Slavyanka (as Alibotush) Mountains (GANEV, 1988); Tzegrilovtzi near Tran (GANEV, 1988); Sestrino, Ograzden Mountains (GANEV, 1988); at the boundary post near Avren village, Rhodopes Mountains 21.VI.1969, 1♂ (TULESHKOV& SLIVOV, 1975; GANEV, 1988; BESHKOV & LANGOUROV, 2004); Sandanski-Lilianovo, Begovica 10. vi. 1986, leg & coll. CS. SZABÓKY and Iskar Gorge – Lakatnik, 1♂ on 17.VII.1965 from a dry meadow above the rocks (SLIVOV, 1970) and repeated without the data in GANEV (1988). Records that are verified by examination of the genitalia (by me), are from The Iron Bridge at Dolna Cherkoviste, East Rhodopes, 1♂ 19.VII.2011, leg. S. BESHKOV; Popovi Skali, between Velika and Fazanovo, Strandzha Mountains, 1♀ 30.VIII.2011, leg. S. BESHKOV and Polska Skakavitsa, Zemen Gorge, 2♂ 7.VII.2012, leg. S. BESHKOV.

The larva feeds on *Galium* spp. (Rubiaceae); reports of other plant genera require confirmation.

[6673 *Mecyna lutealis* (Duponchel, 1833)

[8] records: [1925] – [1988]

Records of *M. lutealis* may be correct, but are more likely to refer to *Mecyna balcanica* (below); it is critical that all the specimens listed below are located and their genitalia examined. The unchecked data are: Rhodopes – in the mountain belt (Drenowsky, 1925); Rhodopes Mountains (Ganev, 1988); Rhodopes Mountains at Kardzhali, 23.VII.1968 (Tuleshkov& Slivov, 1975); Rhodopes Mountains at Podrumiche village, 21.VI.1969 (Tuleshkov& Slivov, 1975); Vitosha Mountains (Ganev, 1988); Lyulin Mountain (Ganev, 1988); Alibotush Mountains (Ganev, 1988); Spanno Pole, Pirin Mountains (Ganev, 1988) and Sandanski-Lilianovo, Begovica 10.VI.1986, leg & coll. Cs. Szabóky; and finally the Botev peak area of the Central Balkan National Park (Sakalian, 2000a). For the time being, they are all regarded as unconfirmed, and the species is placed in square brackets.]

—— *Mecyna balcanica* Slamka & Plant 2016

8 records: 1928 – 2015

This is the undescribed species number 144 in the recent work by Slamka (2013). There are eight confirmed Bulgarian records: Rila Mountains between 1800 and 2400 m., 1♀ collected in July 1928 by O. Bubacek (F. Slamka, pers. comm.); Zemen Gorge at Polska Skakavitsa, 672 m., 1♂, 7.VI.2012, leg. S. Beshkov; Vitosha Mountain at Kokalyane, 500 m., 3♂ 15.VI.2013, leg. S. Beshkov; Pirin Mountains at Banderitsa, 3.VII.2014, leg. A. Outen; Chepan Mountain, 1♂ 12.VI.2014, leg. S. Beshkov; Pirin Mountains at Sharalia, 1♂ (paratype), 8.VI.2014, leg. S. Beshkov and also elsewhere in the Pirin Mountains (F. Slamka) and finally in the Western Rhodopes above Trigrad village, 1280 m., ♂♂ ♀♀ including 1♀ paratype, 12.VII.2015, leg. C. W. Plant. The species appears likely to be widespread and not uncommon in the mountains of the south-west and west of Bulgaria and is also present in Macedonia and eastern Serbia, Montenegro and Greece within the Balkans, as well as further north in Slovakia. It needs to be looked for further east in Bulgaria. Old reports of *M. lutealis* may or may not relate to this species; the two cannot be separated without genitalia examination.

The larva is currently unknown and may have been confused in the past with that of *M. lutealis*.

6674 *Mecyna trinalis* ([Denis & Schiffermüller], 1775)

35 records: 1932 – 2013

On the whole, this is a distinctive species, but the genitalia of all pale specimens from the Balkans which appear to be *M. trinalis* should be checked to exclude any possibility that they are *M. marcidalis* (Fuchs, 1879), which occurs in Asiatic Turkey, with a single record given by Staudinger (1879-1880) from Macedonia; this latter might actually be from modern day Bulgaria as a consequence of significant historical boundary changes. *M. trinalis* is widespread but surprisingly local in Bulgaria, but it occurs in most parts of the country including the southern uplands, the Stara Planina and the coast. Bulgarian adults fly from early June (11th) to mid August (13th), but numbers are too low to allow separate generations to be detected.

The larva feeds on leaves of *Helianthemum* (Cistaceae), from within a silk tube spun on the leaves.

6675 *Mecyna biternalis* (Mann, 1862)

1 record: 1933 – 1933

The illustration of the male genitalia of *M. biternalis* (Fig.118b) in Leraut (2012) is incorrect and shows a different species. The female genitalia (Fig.116a) are correct. The illustrations of both sexes, at species number 147, are correct in Slamka (2013). The report from Lilianovo, Pirin Mountains given by Ganev (1988) lacks data, but is almost certainly the same as the specimen from Lilianovo, Pirin Mountains, 800m, 1♂, 26.VII.1933, in coll. H. Reisser (F. Slamka, pers. comm.). There are no other records available, but *M. biternalis* is undoubtedly overlooked, as are all the other species of *Mecyna*.

The larval foodplant appears to be unknown.

6677 *Mecyna asinalis* (Hübner, 1819)

1 record: 1981 – 1981

Bunkera, Vitosha Mountain, 16.VI.1981 (Ganev, 1984; 1988) is the only Bulgarian record of this rather distinctive moth. It resides in dry, open habitats and its presence in Bulgaria might simply relate to an off-course migrant.

In areas where it is resident, the larva, feeds on *Rubia peregrina* and *Crucianella maritima* (Rubiaceae) on the lower leaves.

6678 ***Mecyna subsequalis*** **(HERRICH-SCHÄFFER, 1851)**

1 record: [1925] – [1925]

A male from Alibotush (now called Slavyanka) Mountain, with a label bearing the name DRENOWSKI, but undated, is present in coll. NMNHS and is presumably the basis of the reports of this species from Alibotush by DRENOWSKI 1925 and GANEV (1988). There do not appear to be any other Bulgarian records. Apart from a few reports from Greece, this is not a European species; it extends from Asiatic Turkey eastwards and includes the Crimea.

6680 ***Agrotera nemoralis*** **(SCOPOLI, 1763)**

42 records: 1862 – 2013

The available records show this to be a widespread but local moth that is present in most areas of the country. It has a lengthy flight period in Bulgaria, extending from mid April (13th) to late August (28th). There is a gap in about the last two weeks of June, suggesting it might be bivoltine here.

The main larval foodplant is *Carpinus betulus* and in general the distribution of this tree limits the distribution of the moth. However, *Castanea sativa* and *Quercus* are also occasionally eaten. Data from Bulgaria are lacking.

6682 ***Diasemia reticularis*** **(LINNAEUS, 1761)**
= *Diasemia litterata* (SCOPOLI, 1763)

29 records: [1903] – 2012

Throughout much of Europe, this species is encountered as an immigrant and that may well be the case with some Bulgarian specimens, but it is also likely to be resident in at east some areas. It was noted as "not uncommon" in Sofia (REBEL, 1903) and later for the Sofia district, BURESCH (1908) reports it from "Kurn-Baylar and Vrana Farm. It flies in June". Several years later in the Rhodopes Mountains it was given as being "common in dry, grassy habitats and especially subalpine and alpine meadows in June and July" (TULESHKOV & SLIVOV, 1975). The spread of records does not disagree with a resident status. Interestingly, although many records lack a note of the sex of the moth captured, the majority of those where it is given refer to males; if the species was present only as an immigrant it might be reasonable to expect the bulk to be comprised of females – as the "dispersal" sex. Dated records give a flight period from early May (8th) to early September (10th). There are possible gaps during the first two weeks of July and the first two weeks of August, although these may be anomalies that vanish as recording effort increases.

Elsewhere, the larva feeds on the basal leaves of *Cichorium*, *Hieracium* and *Picris* (Asteraceae) as well as on *Plantago* (SLAMKA, 2013).

6684 ***Diasemiopsis ramburialis*** **(DUPONCHEL, 1834)**

6 records: 1964 – 2010

It is likely that Bulgarian records of this species are of primary immigrants, with all but one during the September/October autumn period. All records are listed here: Sliven (GANEV, 1988), undated but considered to be from the 1890s or shortly thereafter; Iskar Gorge at Lakatnik, 14.IX.1964, 1 ♀ at light (SLIVOV, 1970); Iskar Gorge at Cherepish, 13.X.1965, 1 ♂ from riverside vegetation (SLIVOV, 1970); Kozhuh, 3.IX.1981 (GANEV, 1984; 1988); Zemen Gorge, Konyavo (now Konyavska) Mountain, 3.VII.1981 (GANEV, 1984; 1988); Kresna Gorge, Struma River valley, 236 m., 20.IX.2010, 1 ♂, leg. C. W. PLANT, A. J. PICKLES.

In areas where the species breeds, the larva is alleged to feed on Brassicaceae (SLAMKA, 2013), but FARAHPOUR-HAGHANI et al. (2016) found that this species develops on the aquatic plant *Azolla filiculoides* in Iran.

6697 ***Amaurophanes stigmosalis*** **(HERRICH-SCHÄFFER, 1848)**
= *Dolicharthria stigmosalis* (HERRICH-SCHÄFFER, 1848)
= *Stenia stigmosalis* (HERRICH-SCHÄFFER, 1848)

14 records: [1863] – 2014

Undated Bulgarian records are from "Sliven, beaten from shrubs by HABERHAUER" (LEDERER, 1863, repeated in REBEL, 1903 & GANEV, 1988) and then Burgas, Lebnitsa in the Ograzden Mountains, the Strandzha Mountains, Mandritsa and

Kozhuh (GANEV, 1988). The Kozhuh locality still supports the species with the latest record being of 1♂ 19.V.2014, leg. S. BESHKOV. There are also modern records from three coastal localities, at the Ropotamo Reserve, 7.VI.2005, leg. B. ZLATKOV, Begliktash, Primorsko, 9.VI.2005, leg. B. ZLATKOV and Tuzlata, 5Km east of Balchik, 1♀ 29.V.2010, leg. Karsholt, in coll. C. W. PLANT. Re-examination of "former" sites for this species could be worth the effort. These sites are in the Rhodopes Mountains at Mandritsa village, 19.VI.1969, 3♂♂ 2♀♀ and at Peshtera, 18.VI.1963, 2♂♂ 1♀ (TULESHKOV & SLIVOV, 1975; GANEV, 1988) and Arkutino, 8.VI.1975, leg. J. SKYVA. No doubt the recorded Bulgarian flight period from mid May to mid June could be extended.

The larva is unknown; it might feed on dead and decaying plant material.

6700 ***Dolicharthria punctalis*** **([DENIS & SCHIFFERMÜLLER], 1775)**
= *Stenia punctalis* ([DENIS & SCHIFFERMÜLLER], 1775)

61 records: [1903] – 2014

This is an unmistakeable species in Bulgaria and can only really be confused with *D. metasialis* (REBEL, 1916) which occurs in the western coastal area of Asiatic Turkey and is so far unrecorded in Europe. *D. punctalis* is widespread and usually very common everywhere that it is found, coming frequently to light traps. GANEV (1988) reported two generations from June to October; records now available from Bulgaria indicate a flight period from early May (7th) to the start of July (4th) and then after a gap of almost a month again from the start of August (1st) to mid September (11th). Three reports after this date in October, from 9th to 20th, might indicate a partial third brood in favourable years or may reflect occasional immigration.

Conflicting reports suggest that the true larval pabulum remains unknown.

6702 ***Dolicharthria bruguieralis*** **(DUPONCHEL, 1833)**
= *Stenia bruguieralis* (DUPONCHEL, 1833)

56 records: 1929 – 2014

This is a widespread and fairly numerous moth in Bulgaria. Although the distribution map shows rather more dots in the west, compared with the Black Sea coastal area, analysis of the records in the database shows that a significantly large proportion of the reports are from the latter region, indicating that the moth is more widespread and numerically common in this area. Adults are on the wing from early May (9th) more or less continuously until mid September (16th). No particular gaps are apparent, but there is a clear increase in numbers of individuals in the second half of August; it is possible that the population is boosted in this period by immigration. Occasional lighter examples of *D. bruguieralis* might be confused with darker forms, or damaged examples of *Clasperia ophialis* (TREITSCHKE, 1829), discussed below, although in comparison, the elongated abdomen of *D. bruguieralis* contrasts sharply with the shorter and more stocky abdomen of *C. ophialis*, especially in the male, and once seen is usually diagnostic in isolation.

The larva is thought to feed on dead and decaying plant material (LHOMME, 1935).

6704 ***Antigastra catalaunalis*** **(DUPONCHEL, 1833)**

2 records: 1995 – 1995

The two Bulgarian records are from Zhaltichalskoto Dere Valley, near Meden Buk village, 150 m., 2 on 20.IX.1995 and from Byalo Pole (Belopolyane) village, Ivailovgrad region, 180 m., five on the following night of 21.IX.1995, both leg. B. GOATER & S. BESHKOV (GOATER, 1996; BESHKOV & GOATER, 2000; BESHKOV & LANGOUROV, 2004). It is a Mediterranean species, associated with dry, usually coastal habitats; the two Bulgarian records are surely of immigrants.

The larva feeds on young shoots and leaves of *Antirrhinum*, *Linaria* (Scrophulariaceae) and *Sesamum* (Pedaliaceae), later moving to feed on the developing seeds.

6688 ***Spoladea recurvalis*** **(FABRICIUS, 1775)**

2 records: 2009 – 2009

This is a widespread species of tropical and subtropical areas that regularly migrates into north-west Europe, but rarely into the Balkans for which the map in Slamka (2013) shows a report from Greece only. There are two specimens known from in Bulgaria. One was collected at Kozhuh, 23.X.2009 (leg. B. ZLATKOV) and another in the same general area at around the same period, for which details remain outstanding

6691 ***Hodebertia testalis*** **(Fabricius, 1794)**
= *Palpita incoloralis* Guenée, 1854)

1 record: 1995 – 1995

This is a native of the tropical and subtropical zones; the type locality is in India. There is a single Bulgarian record, which presumed to be of an immigrant, from the Momina Skala Hut, near Madzharovo at 140 m., 19.IX.1995, leg. B. Goater & S. Beshkov (Goater, 1996; Beshkov & Goater, 2000; Beshkov & Langourov, 2004).

6690 ***Palpita vitrealis*** **(Rossi, 1794)**
= *Palpita unionalis* (Hübner, 1796)

59 records: 1958 – 2014

This striking moth, with its brilliant, translucent white wings is a resident in tropical and subtropical areas further south. In north Europe, it certainly occurs only as an immigrant and does not survive the winters which, in its natal area, are passed in the larval stage. In the extreme south of Europe, including Greece, it is probably also resident at low density, reinforced by immigration. The European distribution map shown in Slamka (2013) indicates migrant records in many countries but places a solid black dot on the Bulgarian coast line – implying, even if only indirectly, that it is resident there. Although it is certain that the Black Sea coast, if anywhere in Bulgaria, is the most climatically favourable, no satisfactory evidence can be drawn from the existing database to indicate anything other than immigrant status. Adults are recorded here from mid May (16th) to mid November (16th), with a few gaps when plotted by standard weeks.

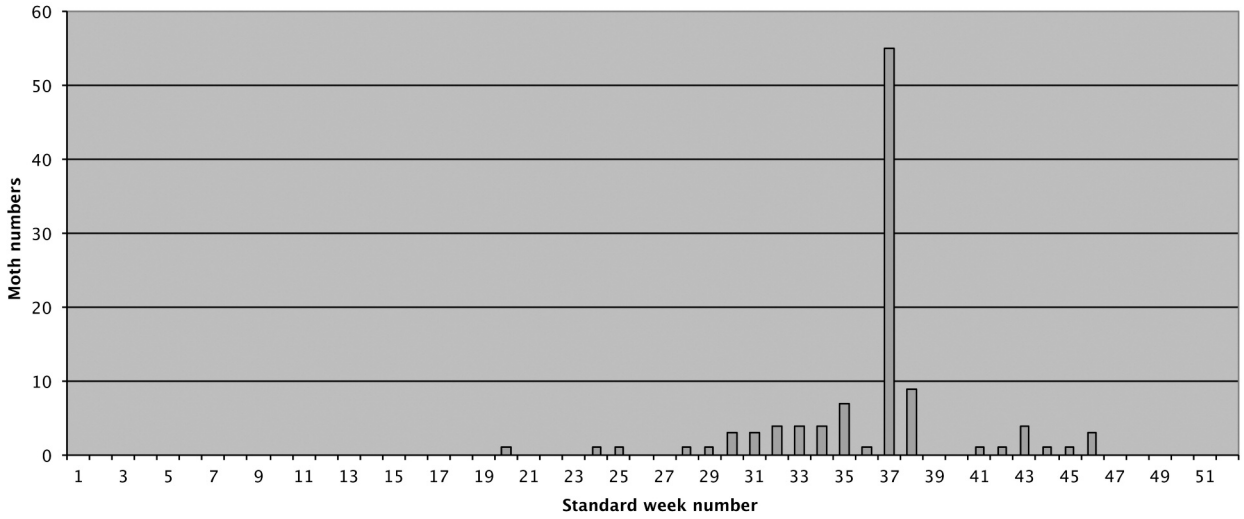


Fig. 26: Flight period by standard week number (horizontal axis) of *Palpita vitrealis* (Rossi, 1794) in Bulgaria.

The larva feeds on various species of Oleaceae and so could, conceivably, become established on the coast of Bulgaria.

—— ***Cydalima perspectalis*** **(Walker, 1859)**

7 records: 2014 – 2014

This striking and rather large crambid has invaded many countries of Europe since approximately 2006, and is now established in several. The first European records are from Germany in 2007, probably introduced in 2005 (Billen (2007), and now it is found also in Switzerland, Great Britain and France (Leraut, 2012), Romania (Iamandei, 2010) and Austria, Italy, Czech Republic, Hungary, Turkey and Slovenia (Ramel & Rossi, 2013). Opinions differ on whether the initial establishment was a result of human accident or natural immigration, but there can be no doubt that in north-west Europe the population is now being strengthened by fresh arrivals from elsewhere. The origin of these individuals is unlikely, however, to be the native area of eastern Asia and movement about Europe is clearly taking place. Against this background, the arrival of the species in Bulgaria was to be expected. The Bulgarian records are from three disjunct regions: on the Black Sea coast it has been found at Balchik Botanical Garden, 18.VIII.2014, leg. S. Beshkov, B. Zlatkov & D. Dimitrov, Balchik town (Penny Market), 18.VIII.2014, leg. S. Beshkov & S. Abadjiev, the Albena Resort, Zlatni Tyasati Resort and Varna town, leg. D. Dimitrov and the Varna Zhurnalist Resort, 9.X.2014, photographed by N. Draganova. In the south-east of the country it was found in the Strandzha Mountains at Gramatikovo village, 13.VIII.2014, leg. N. Simov and in the far south-west it was found at Usoyka village, 11.VIII.2014, leg. S. Beshkov & S. Abadjiev. The records are given in greater detail in Beshkov et al. (2015), who also illustrates both the larvae and the feeding damage caused by them. The

larvae are a significant pest of *Buxus*, which they seem able to defoliate at an alarmingly rapid rate and arrival at the Botanical Garden might be the result of an earlier introduction. However, the fact that all but one of the reports are in the same narrow band of dates in August 2014 is strong evidence in support of arrival in the country without any form of human assistance.

6695 ***Synclera traducalis* (ZELLER, 1852)**

1 record: 1979 – 1979

S. traducalis is another native of the tropical and sub-tropical regions further south, where the larva is associated with Rhamnaceae. In Europe, it has been recorded as an immigrant in Sweden and on a single occasion in Bulgaria, in the Rhodopes Mountains at the Rosen Pass, 12.IX.1979 (GANEV, 1984; 1988). I have not seen the specimen, but the moth is distinctive and the record cannot be doubted.

6524 ***Hydriris ornatalis* (DUPONCHEL, 1832)**

1 record: 2014 – 2014

This is also a native of the tropical and sub tropical regions further south and as elsewhere in Europe, Bulgarian examples are of immigrants. The moth is distinctive and the only known Bulgarian occurrence is at Zlatolist, where three were caught on 18.X.2014, leg. S. BESHKOV.

6707 ***Metasia (Metasia) suppandalis* (HÜBNER, 1823)**

19 records: [1903] – 2014

M. suppandalis is a south European moth that frequents dry, open biotopes. In Bulgaria, it is widely distributed across the entire southern upland zone and also in the Black Sea coastal area, but it is evidently rather local and the distribution map shows an apparent absence from the north. However, at sites where it is encountered, it usually appears to be common. Bulgarian adults are on the wing from mid June (19th) to mid August (16th) probably in a single generation.

The early stages appear to be unknown.

6710 ***Metasia (Metasia) carnealis* (TREITSCHKE, 1829)**

6 records: 1911 – [1988]

The illustration of male genitalia (Fig. 122a) in LERAUT (2012) is actually of those of *M. gigantalis* STAUDINGER, 1871, resurrected from synonymy by SLAMKA (2013) who illustrates the male genitalia of *C. carnealis* (TREITSCHKE, 1829) correctly on Plate 46. The first Bulgarian record is of two specimens labelled as being from Burgas, 8.VIII.1911, in coll. NMNHS, which were probably collected by TSCHORBADJIEV; these may be the source of reference to this species from Burgas in GANEV (1988). From Veliko Tarnovo, there are also specimens in NMNHS labelled 8.VIII.1928, 10.VIII.1928, 11.VIII.1928 & 24.VIII.1928, leg. TSCHORBADJIEV and these are also referred to in TULESHKOV (1930). Finally, there is a reference to Kozhuh, given without date or any other detail in GANEV (1988).

The larval stage is apparently unknown.

6713 ***Metasia (Metasia) rosealis* RAGONOT, 1895**

1 record: 2010 – 2010

The only Bulgarian record of *M. rosealis* is from the East Rhodopes Mountains at Byala Reka River, near Meden Buk, 130 m., 1♂ 6.VIII.2010, leg. B. ZLATKOV & TS. GANEVA, genitalia det. C. W. PLANT. It is a rare moth in Europe, but occurs in the Balkans on the Dalmatian coast and is also present in Asiatic Turkey, so its appearance at a site roughly halfway between the two may be unsurprising.

The larva is apparently unknown.

6715 ***Metasia (Clasperia) ophialis* (TREITSCHKE, 1829)**

109 records: [1903] – 2015

In Europe, this species is found in Central Europe, Italy and the Balkans. It is nearly ubiquitous in Bulgaria, often entering light traps in large number. This can cause problems for field workers, because badly worn examples can look very like

some other species, necessitating genitalia dissection. Adults are noted from early June (11th) to mid September (18th) continuously with no discernible break, suggesting that it may be continuously brooded during the summer. A single record falls outside this period in early May (6th). There are minor differences in detail of the genitalia across the geographical range of the species and it is worth recording that all Bulgarian material so far examined conforms precisely to Plate 51, Fig. 206j (males) and more or less to Plate 128, Fig. 206a (females) in the work by SLAMKA (2013).

The larval stage appears to be unknown.

6719 ***Nomophila noctuella*** **([DENIS & SCHIFFERMÜLLER], 1775)**

134 records: [1903] – 2014

This ubiquitous species is resident in Bulgaria, but its numbers are boosted hugely by immigration, which appears to occur annually. As a resident, it occupies open, usually dry habitats primarily, if not exclusively, at low altitudes. As an immigrant, it is noted at altitudes up to 2200 m. (above the Rila Monastery) and elsewhere in Europe it has been collected at 4000 m. in the Alps. GANEV (1988) considered there to be three generations, flying from April to October. At present, the database provides evidence for flight from late March (27th) until the end of October (31st) with scarcely a break, with a single later record in mid November (16th). By plotting numbers against standard week, it is evident that resident populations probably do generate three peaks, but the huge numbers of immigrants mask them and make it difficult to interpret the graph shown here. The two large peaks in weeks 32 – 34 and 36 – 38 indicate the periods of 6 – 25 August and 3 – 23 September.

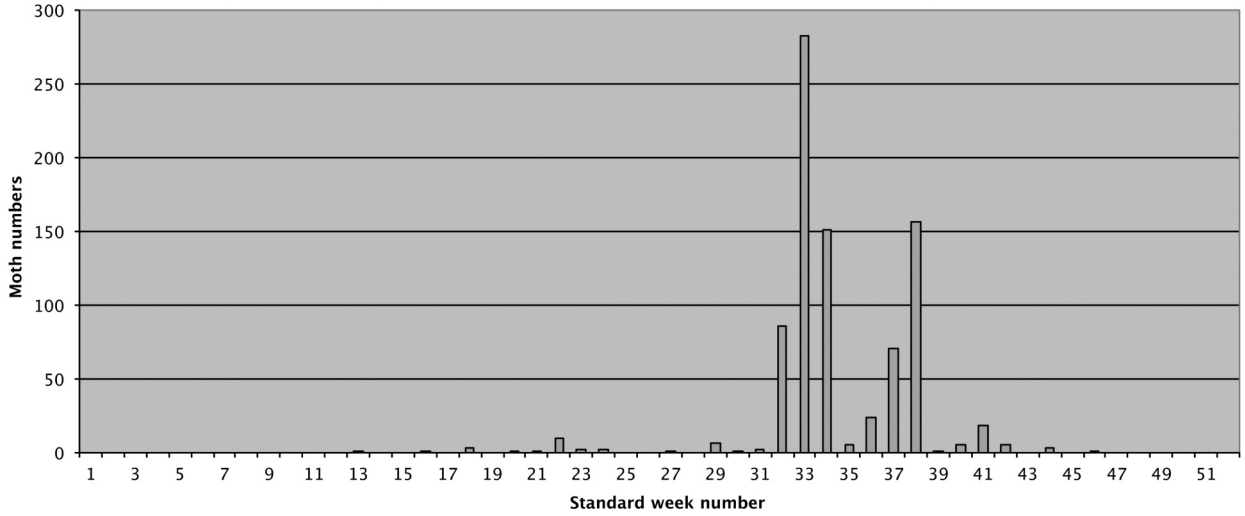


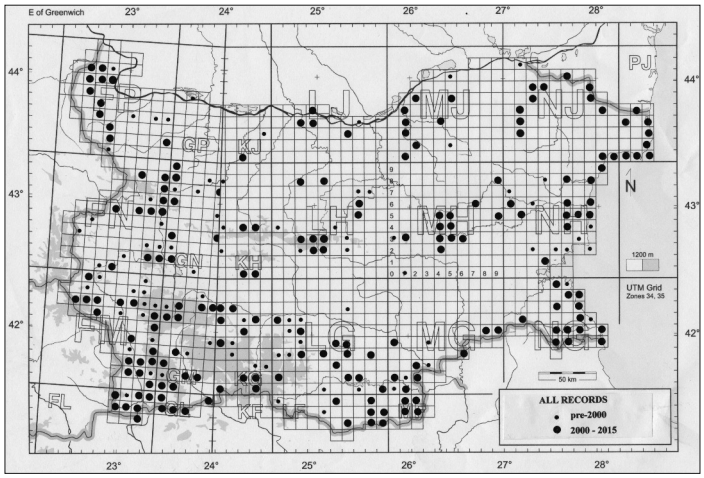
Fig. 27: Flight period by standard week number (horizontal axis) of *Nomophila noctuella* ([D. & S.], 1775) in Bulgaria.

The larva has yet to be found in Bulgaria, but elsewhere feeds on *Polygonum* (Polygonaceae), *Trifolium* (Fabaceae) and various grasses (Poaceae) and probably other plant species.

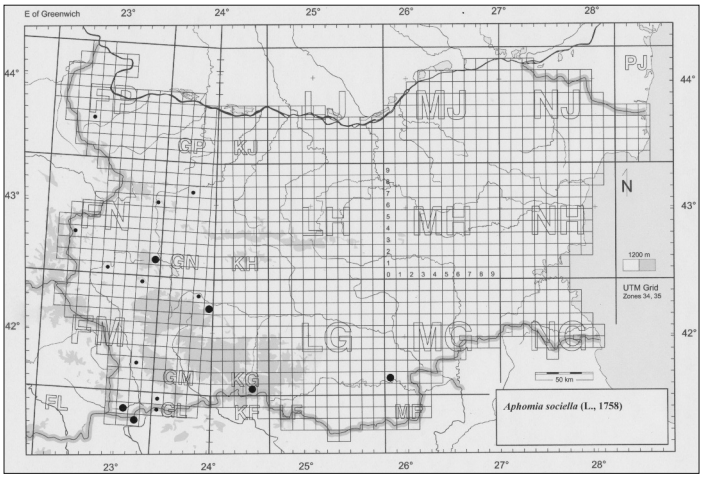
DISTRIBUTION MAPS OF THE BULGARIAN PYRALOIDEA

Distribution maps have been plotted for the 386 tax (including subspecies) where the resolution of the data is sufficient to permit this; this means that just three species lack a distribution map. The maps summarise all available data up to the end of December 2015 on the basis of simple presence or absence within each of the 10 x 10 Km squares of the UTM grid. Records made prior to the end of year 1999 are represented by a small spots in the appropriate UTM square; the larger dots represent the presence of a modern record, made from 1st January 2000 to 31st December 2015. The presence of a dot in a square on a map indicates only a presence of the stated species within the date band represented. This might represent a single sighting of a single specimen or multiple sightings of a large number of specimens and the maps do not convey any indication whatsoever of numerical abundance. The dots are hierarchical – some larger spots may conceal smaller dots.

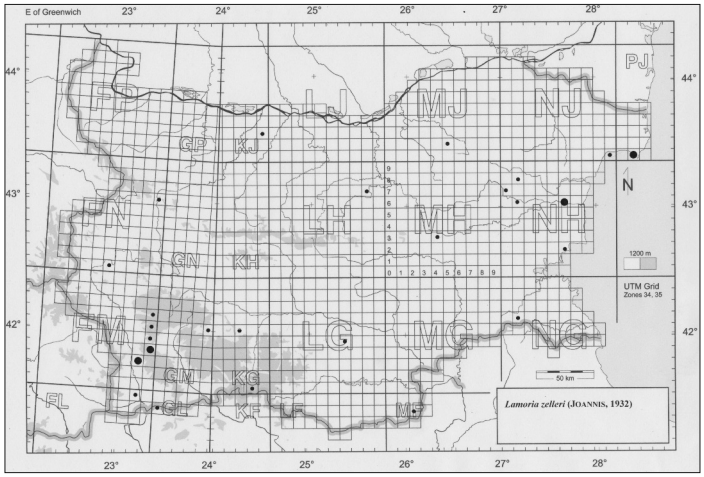
An increasingly popular view, at least amongst some British entomologists, is that the generation of distribution maps is a pointless exercise unless the maps are effectively "complete". Whilst I concede that the maps here are by no means "complete" I do not necessarily agree with that view; whilst the maps here are judged unlikely to represent the final distribution for all but a handful of species they are nevertheless very likely to stimulate targetted searching for various species in different geographical areas.



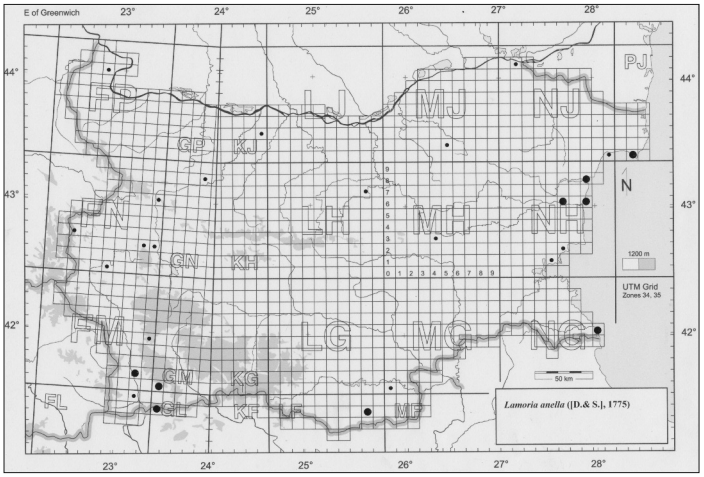
Coverage map.



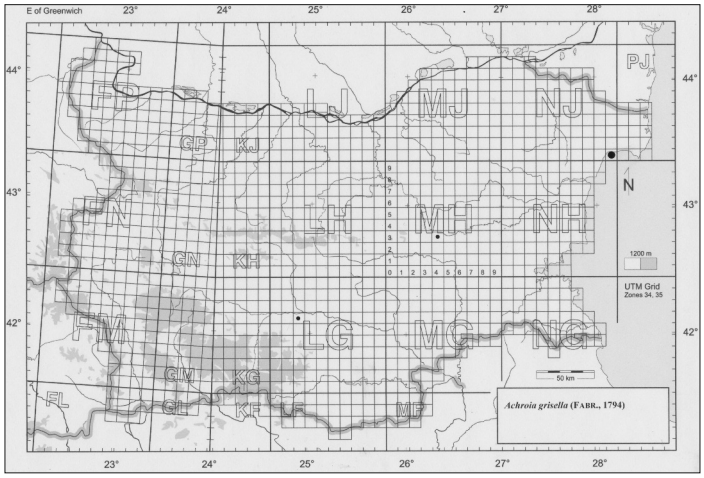
Distribution of *Aphomia sociella* (Linnaeus, 1758)



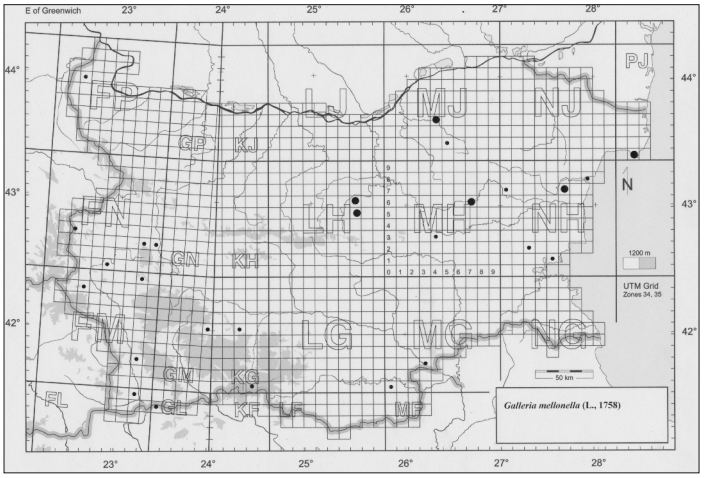
Distribution of *Lamoria zelleri* (Joannis, 1932)



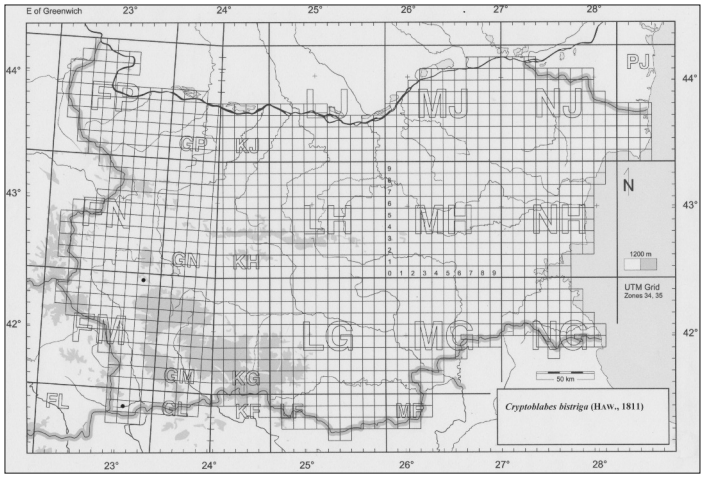
Distribution of *Lamoria anella* ([Denis & Schiffermüller], 1775)



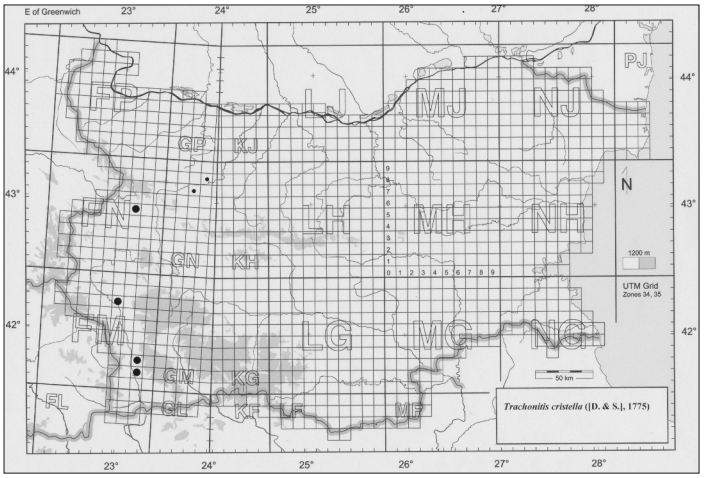
Distribution of *Achroia grisella* (Fabricius, 1794)



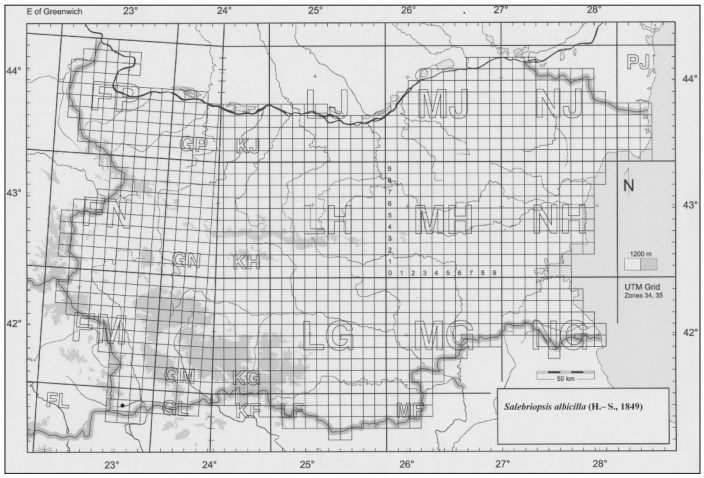
Distribution of *Galleria mellonella* (Linnaeus, 1758)



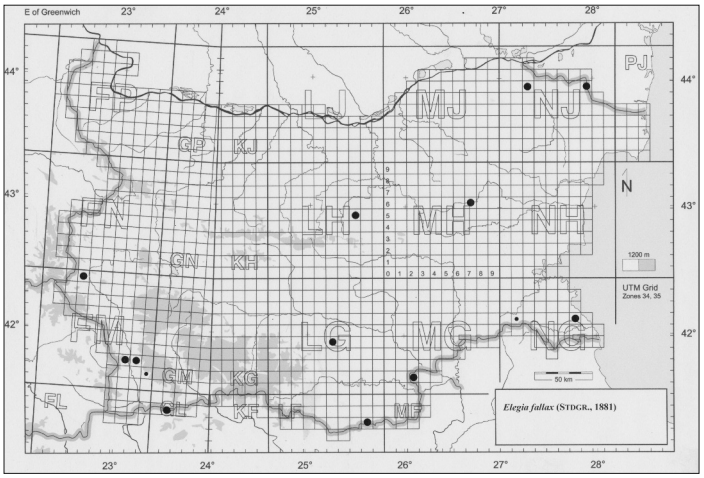
Distribution of *Cryptoblabes bistriga* (HAWORTH, 1811)



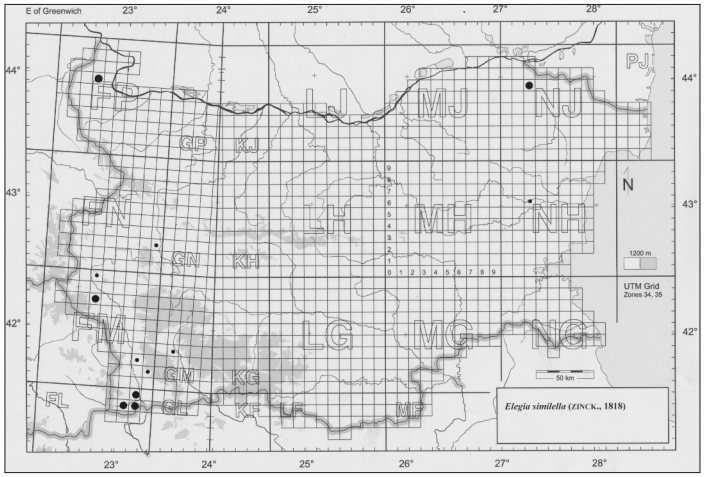
Distribution of *Trachonitis cristella* ([DENIS & SCHIFFERMÜLLER], 1775)



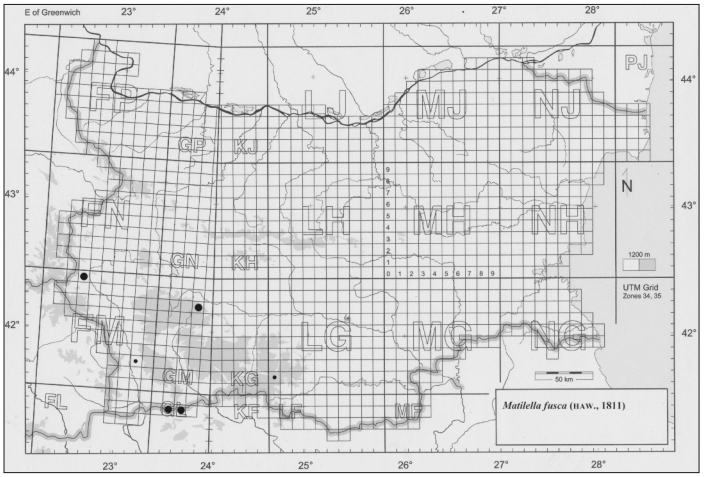
Distribution of *Salebriopsis albicilla* (HERRICH-SCHÄFFER, 1849)



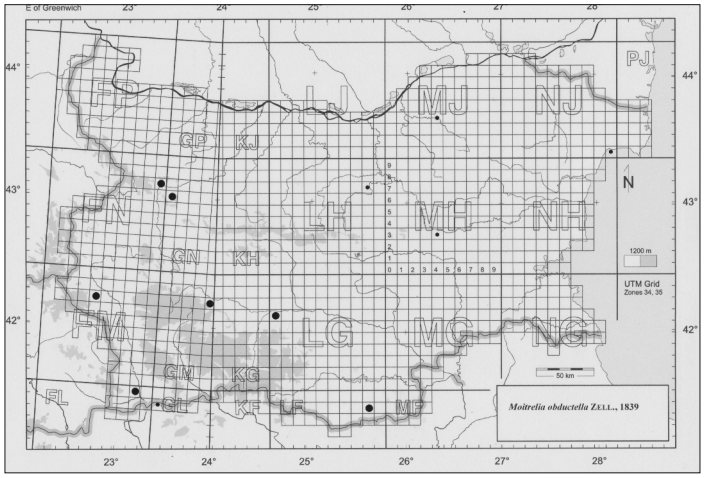
Distribution of *Elegia fallax* (STAUDINGER, 1881)



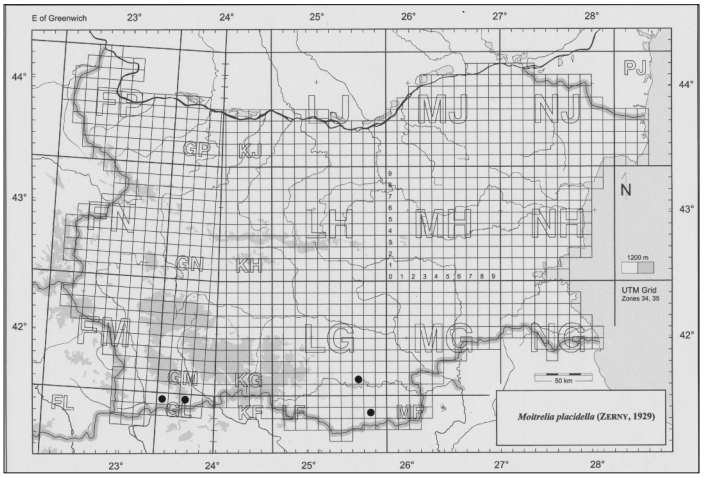
Distribution of *Elegia similella* (ZINCKEN, 1818)



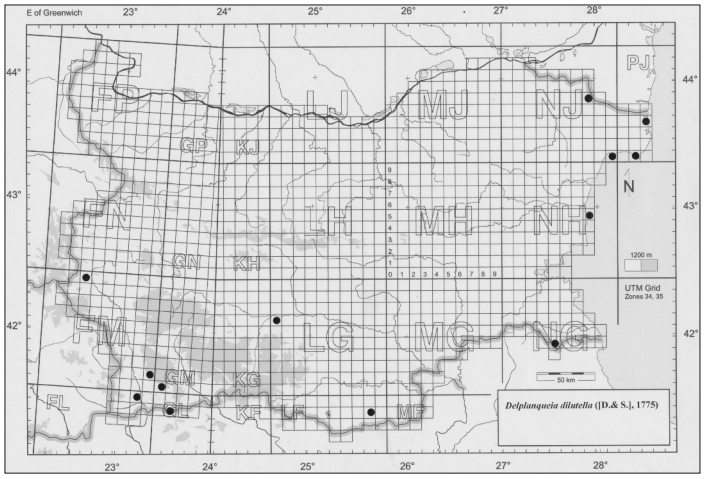
Distribution of *Matilella fusca* (HAWORTH, 1811)



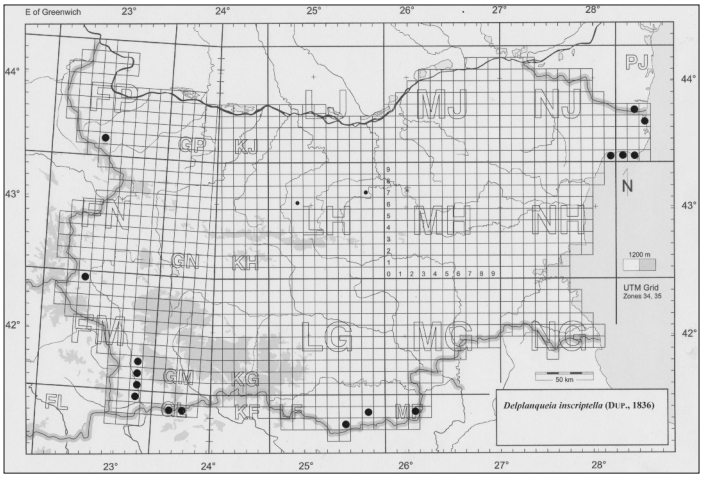
Distribution of *Moitrelia obductella* ZELLER, 1839



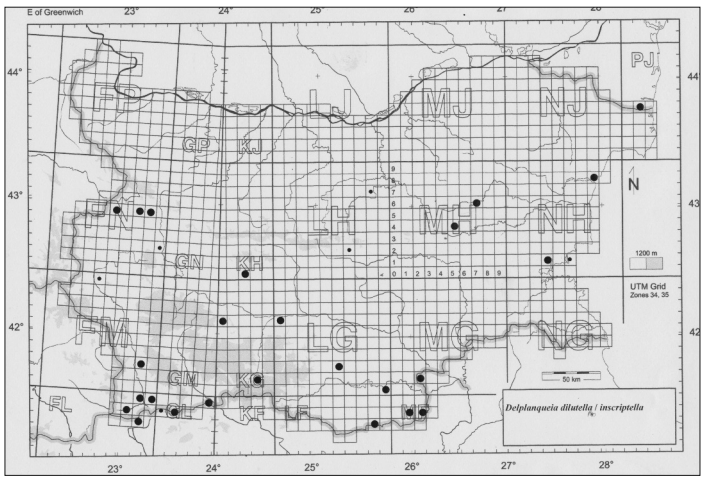
Distribution of *Moitrelia placidella* (ZERNY, 1929) comb. nov.



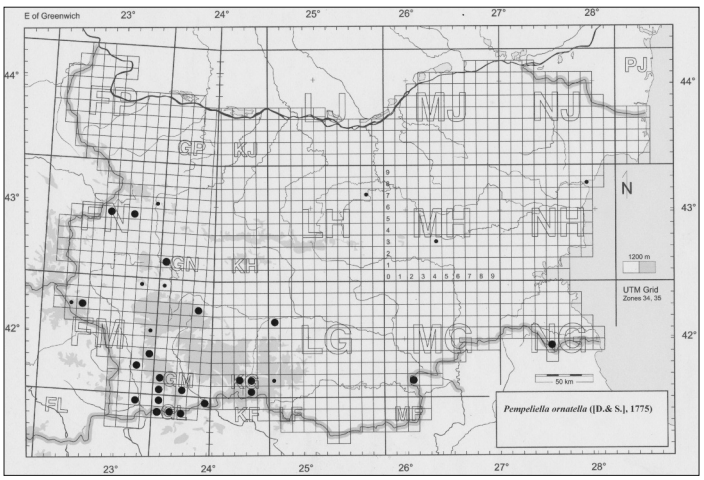
Distribution of *Delplanqueia dilutella* ([Denis & Schiffermüller], 1775)



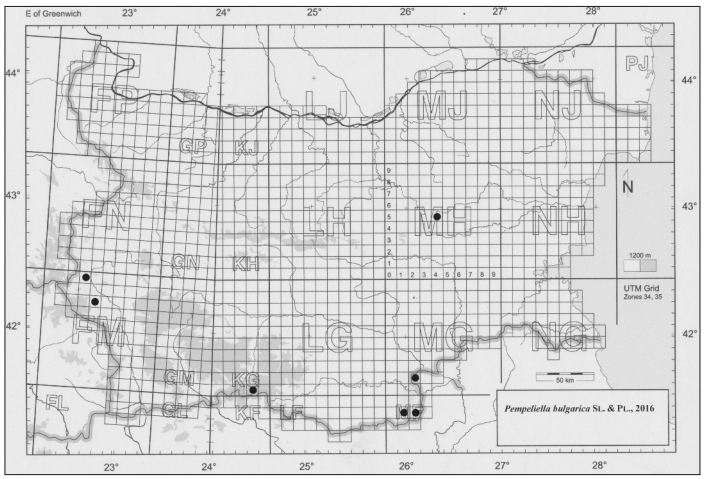
Distribution of *Delplanqueia inscriptella* (Duponchel, 1836)



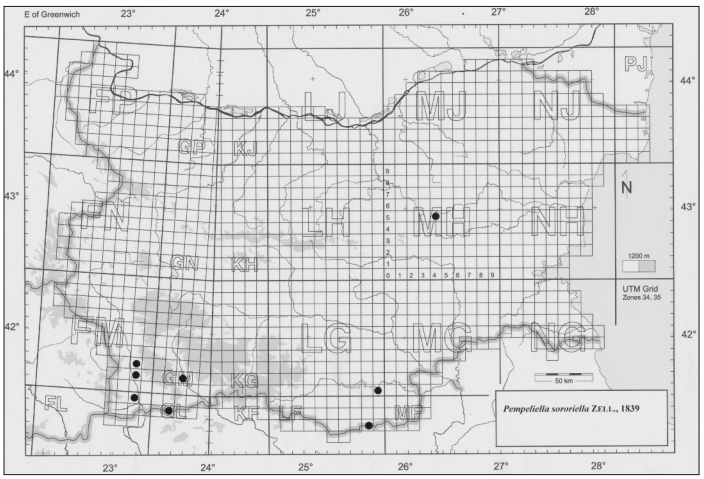
Distribution of *Delplanqueia inscriptella* / *dilutella* ([D. & S.], 1775)



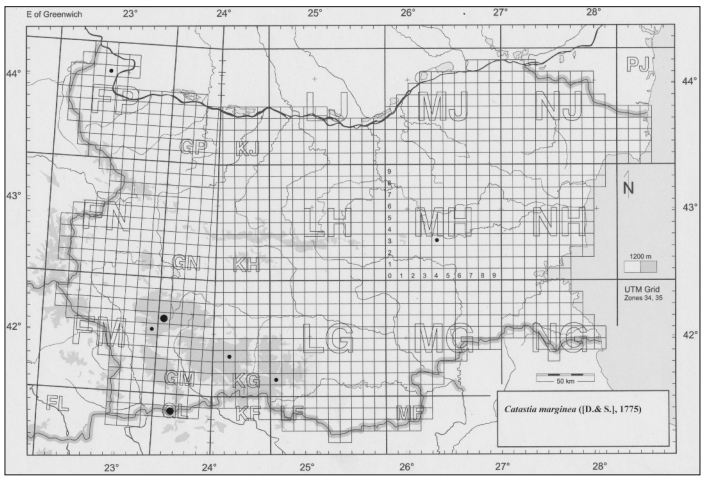
Distribution of *Pempeliella ornatella* ([Denis & Schiffermüller], 1775)



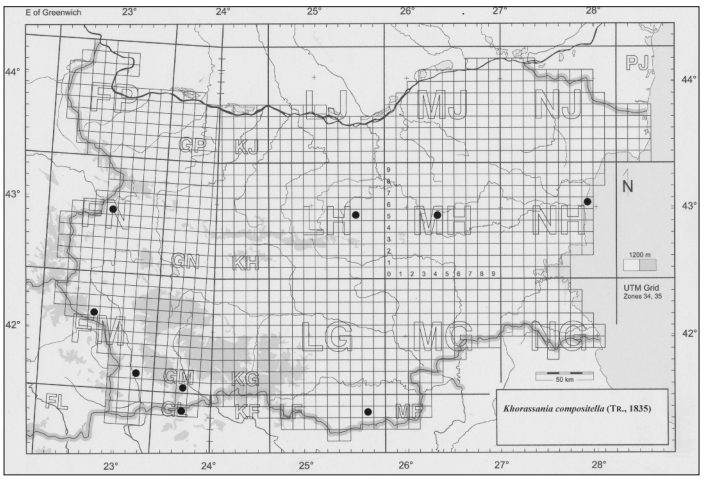
Distribution of *Pempeliella bulgarica* Slamka & Plant, 2016



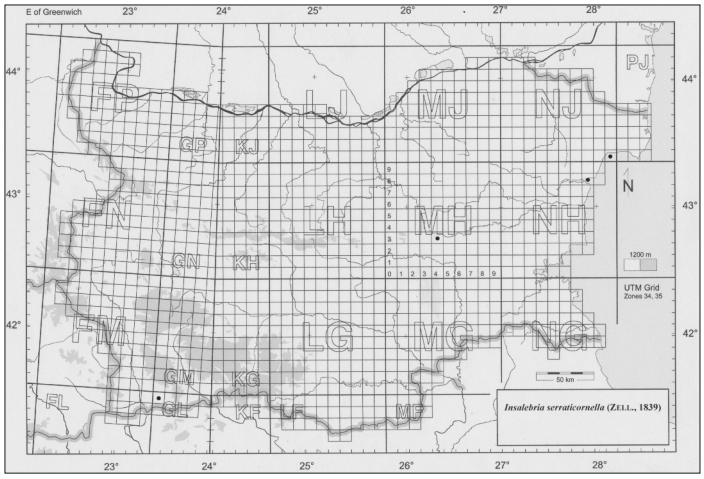
Distribution of *Pempeliella sororiella* Zeller, 1839



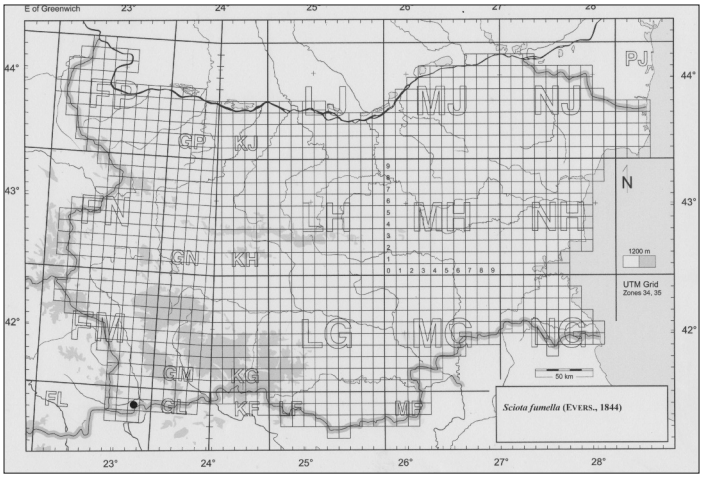
Distribution of *Catastia marginea* ([Denis & Schiffermüller], 1775)



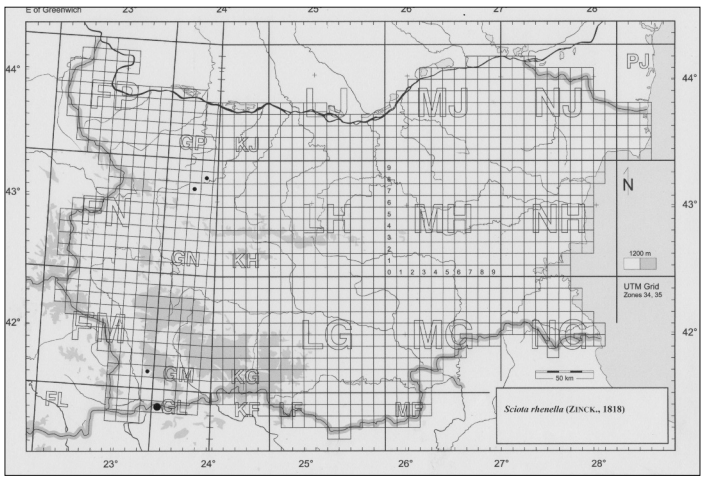
Distribution of *Khorassania compositella* (Treitschke, 1835)



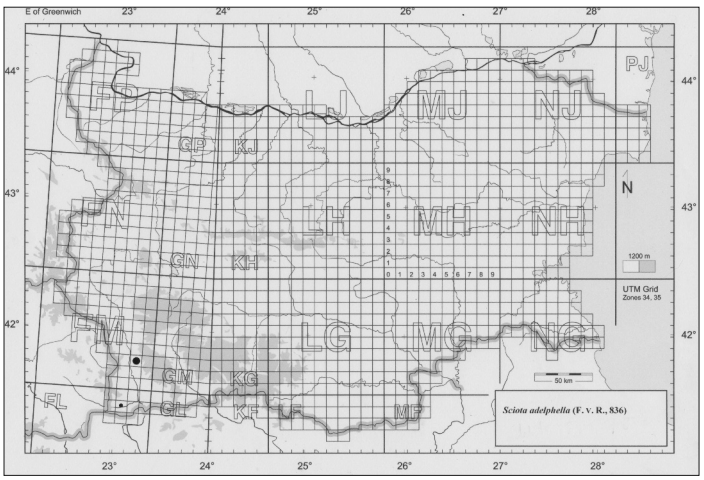
Distribution of *Insalebria serraticornella* (Zeller, 1839)



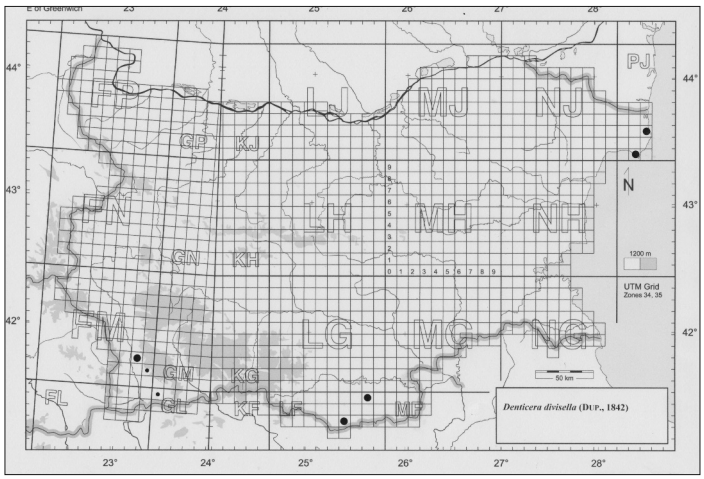
Distribution of *Sciota fumella* (Eversmann, 1844)



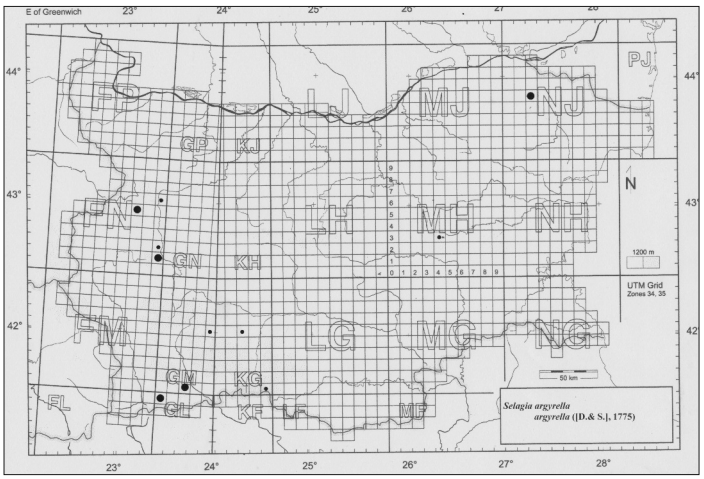
Distribution of *Sciota rhenella* (Zincken, 1818)



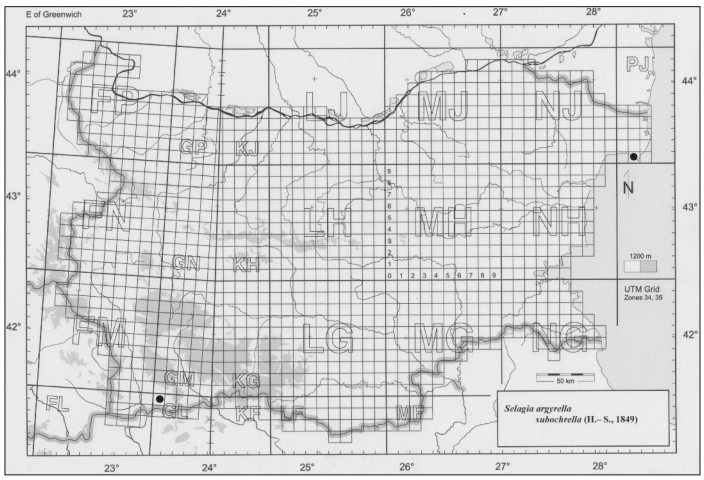
Distribution of *Sciota adelphella* (Fischer von Röslerstamm, 1836)



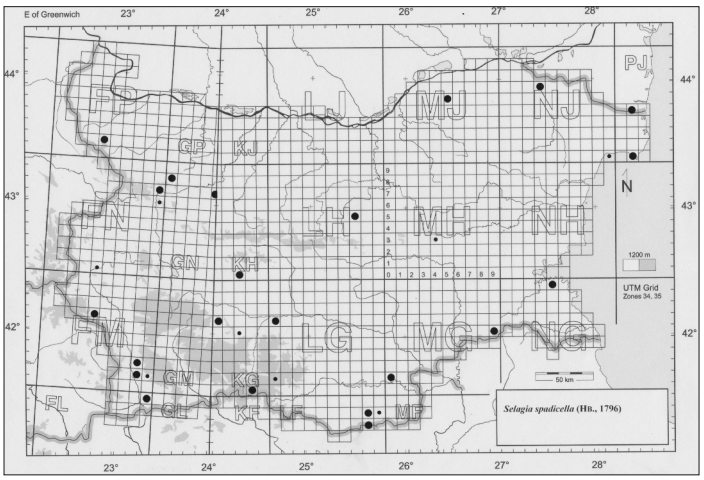
Distribution of *Denticera divisella* (Duponchel, 1842)



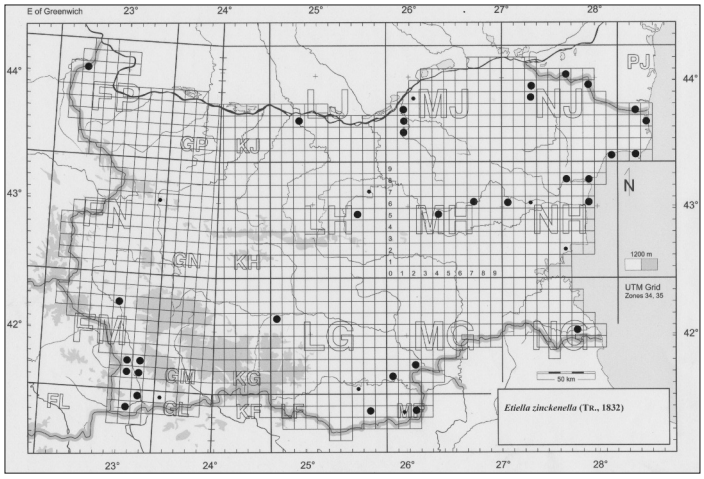
Distribution of *Selagia argyrella argyrella* ([Denis & Schiffermüller], 1775)



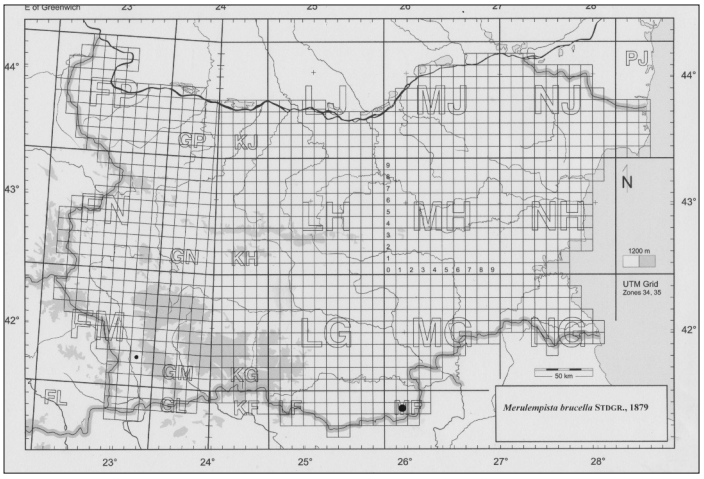
Distribution of *Selagia argyrella subochrella* (Herrich-Schäffer, 1849)



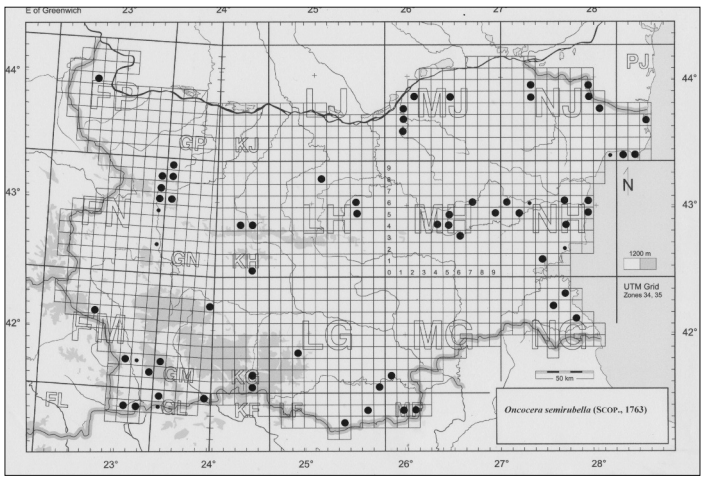
Distribution of *Selagia spadicella* (Hübner, 1796)



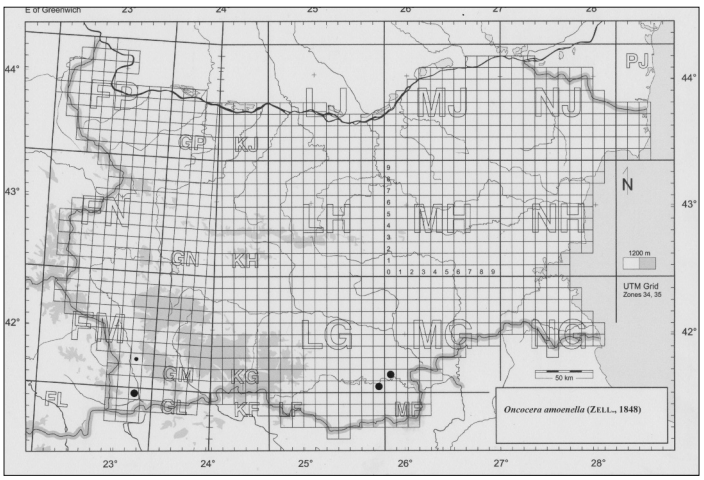
Distribution of *Etiella zinckenella* (TREITSCHKE, 1832)



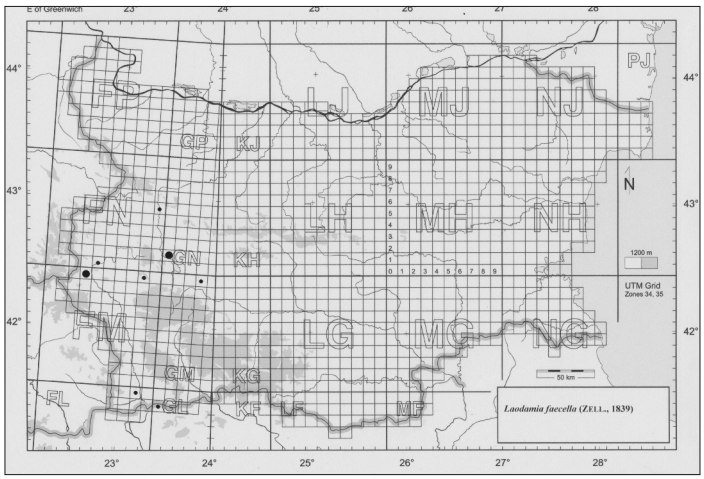
Distribution of *Merulempista brucella* STAUDINGER, 1879



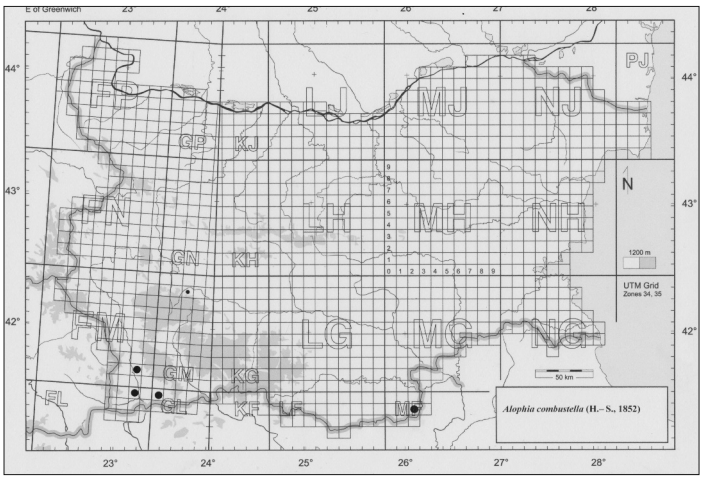
Distribution of *Oncocera semirubella* (SCOPOLI, 1763)



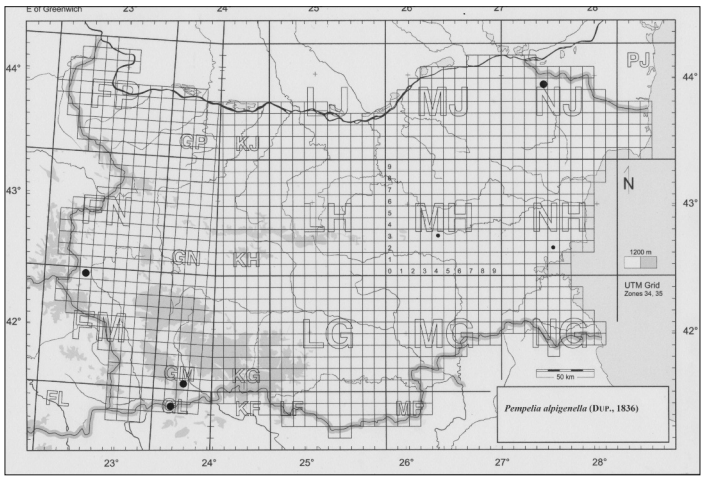
Distribution of *Oncocera amoenella* (ZELLER, 1848)



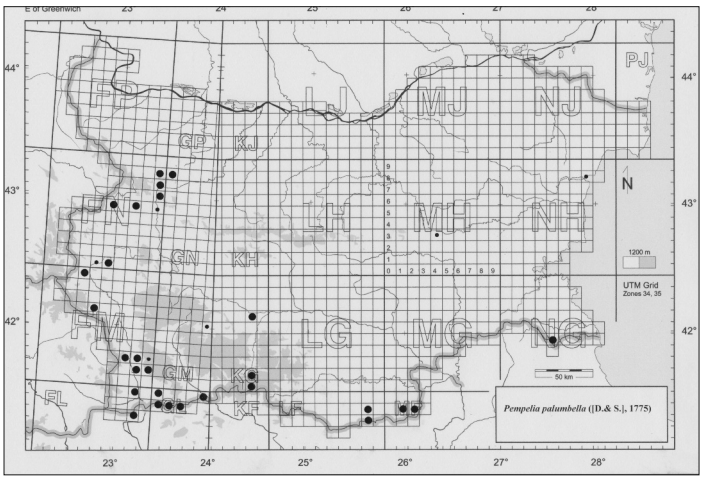
Distribution of *Laodamia faecella* (ZELLER, 1839)



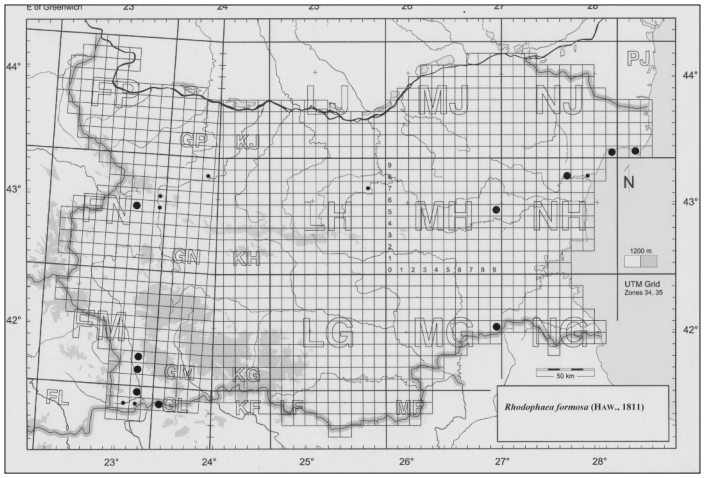
Distribution of *Alophia combustella* (HERRICH-SCHÄFFER, 1852)



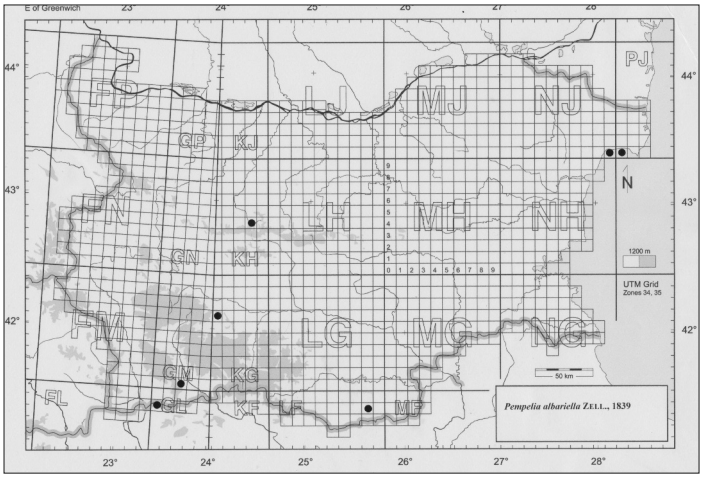
Distribution of *Pempelia alpigenella* (DUPONCHEL, 1836)



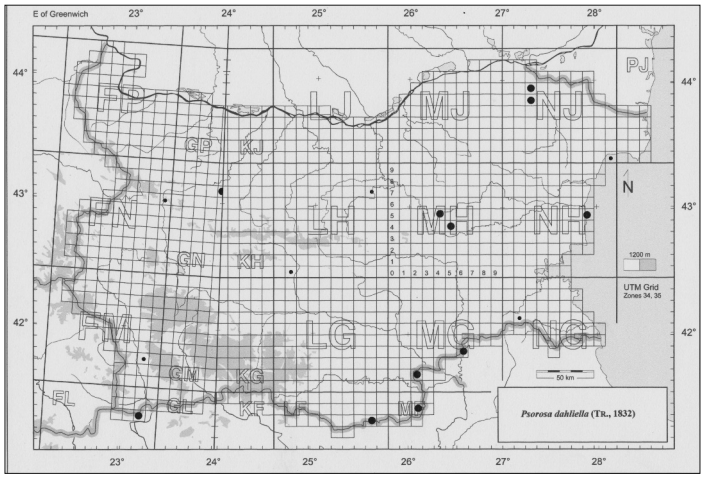
Distribution of *Pempelia palumbella* ([DENIS & SCHIFFERMÜLLER], 1775)



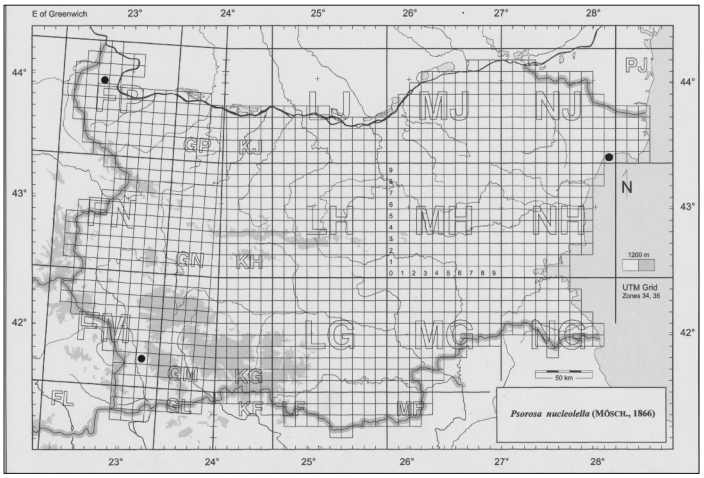
Distribution of *Rhodophaea formosa* (HAWORTH, 1811)



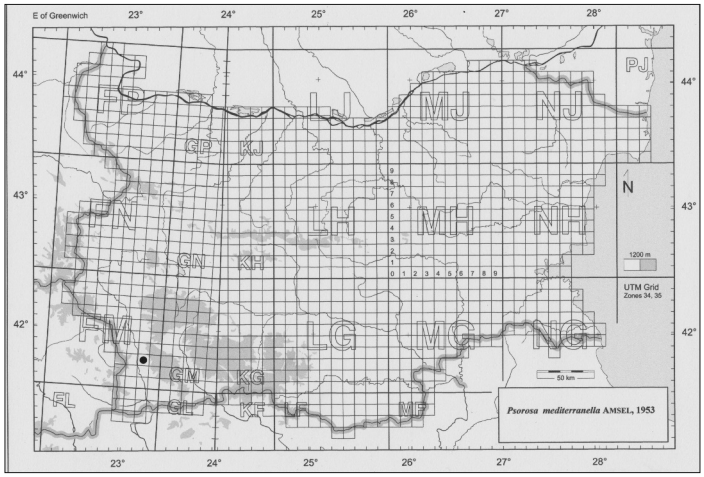
Distribution of *Psorosa albariella* ZELLER, 1839



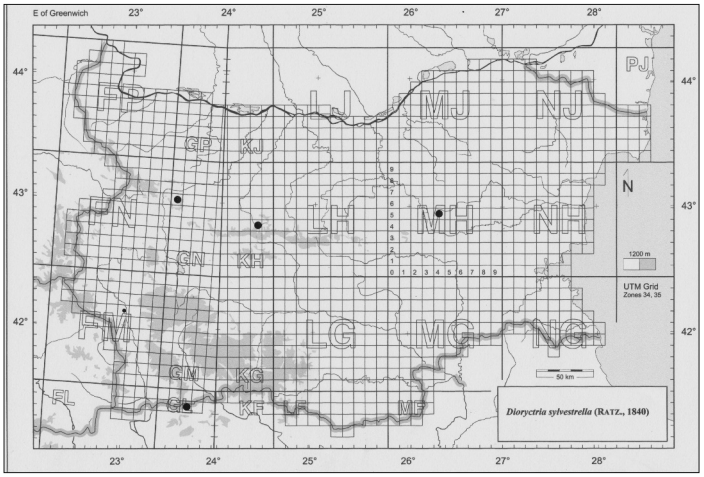
Distribution of *Psorosa dahliella* (TREITSCHKE, 1832)



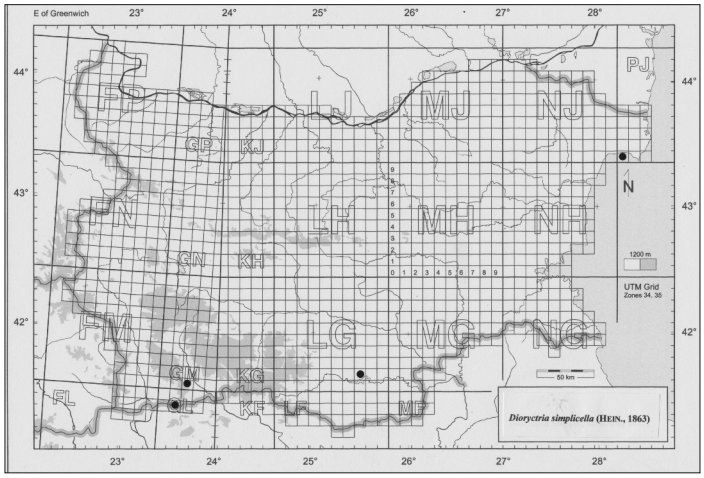
Distribution of *Psorosa nucleolella* (MÖSCHLER, 1866)



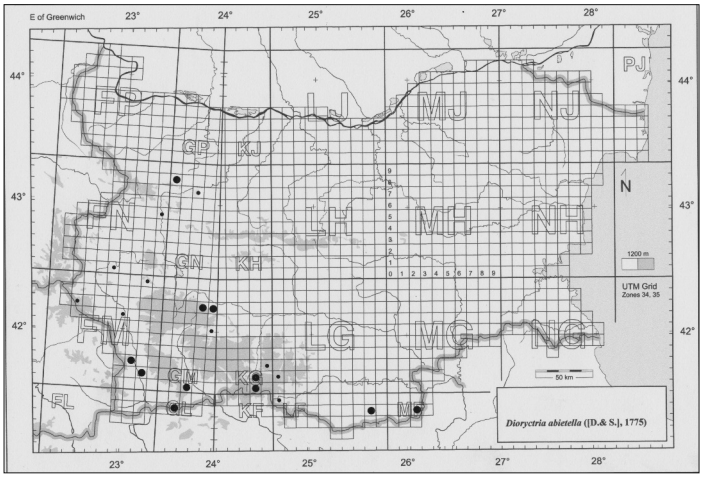
Distribution of *Psorosa mediterranella* AMSEL, 1953



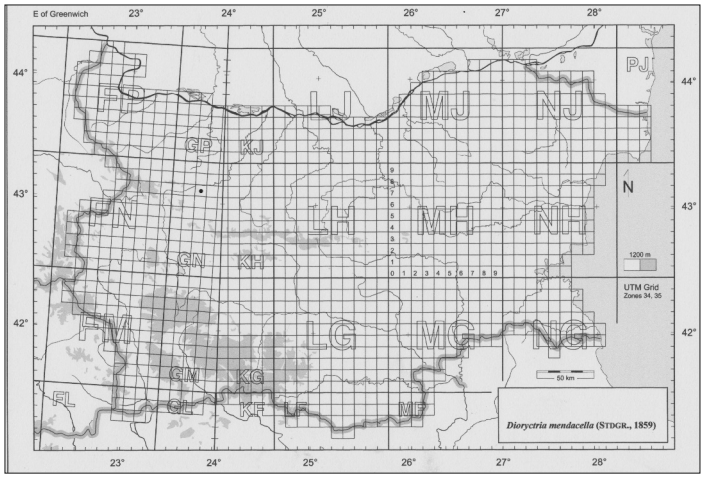
Distribution of *Dioryctria sylvestrella* (RATZEBURG, 1840)



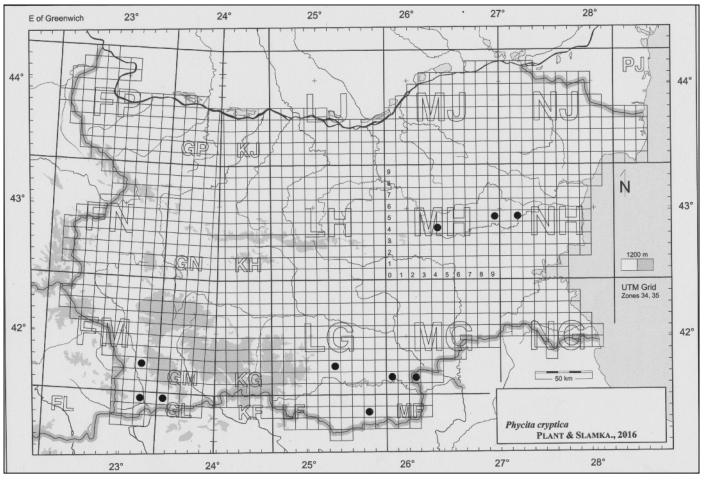
Distribution of *Dioryctria simplicella* HEINEMANN, 1863



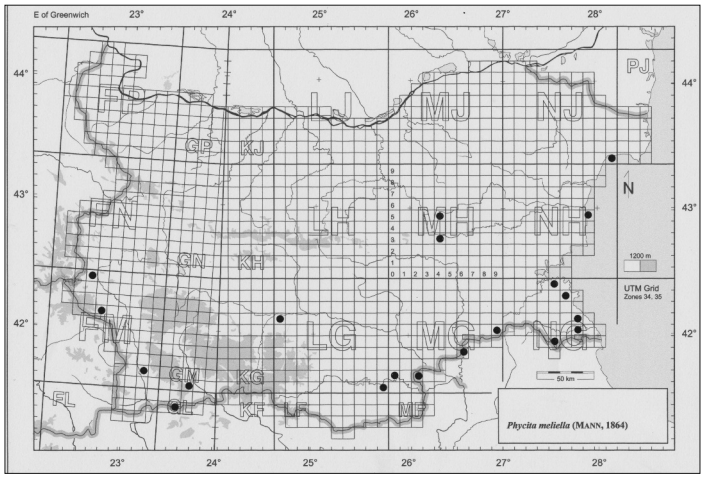
Distribution of *Dioryctria abietella* ([DENIS & SCHIFFERMÜLLER], 1775)



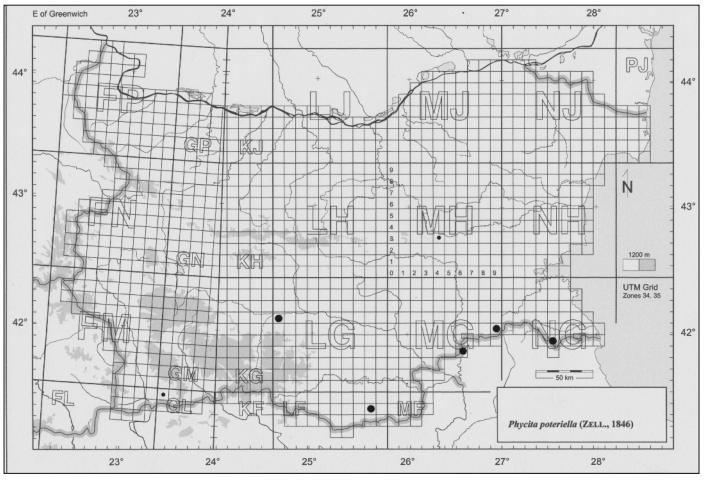
Distribution of *Dioryctria mendacella* (Staudinger, 1859)



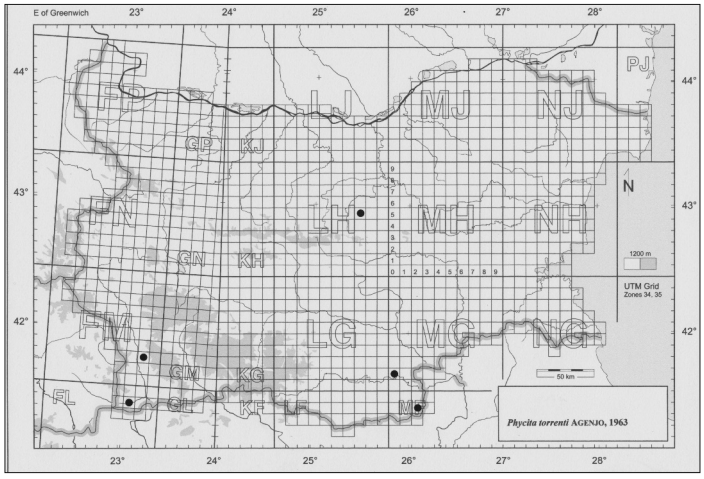
Distribution of *Phycita cryptica* Plant & Slamka, 2016



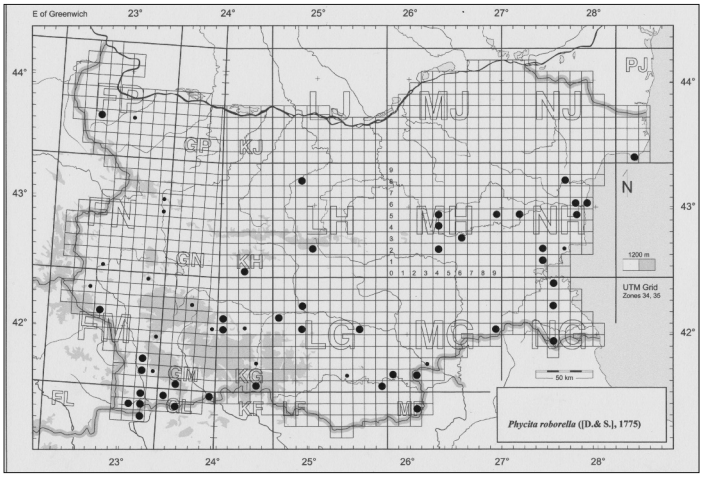
Distribution of *Phycita meliella* (Mann, 1864)



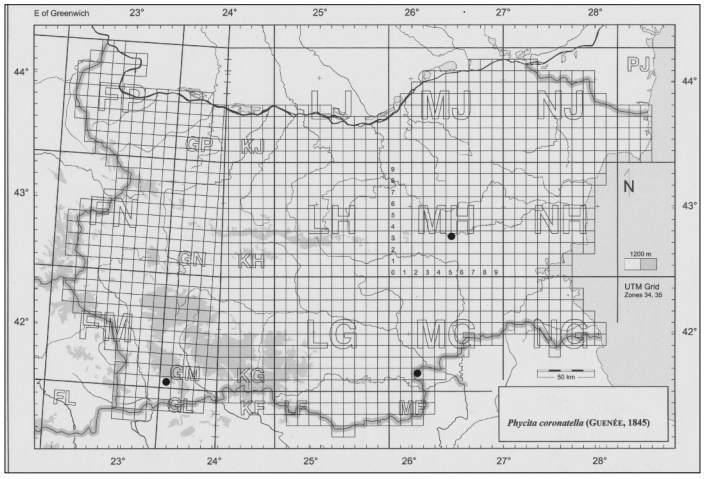
Distribution of *Phycita poteriella* (Zeller, 1846)



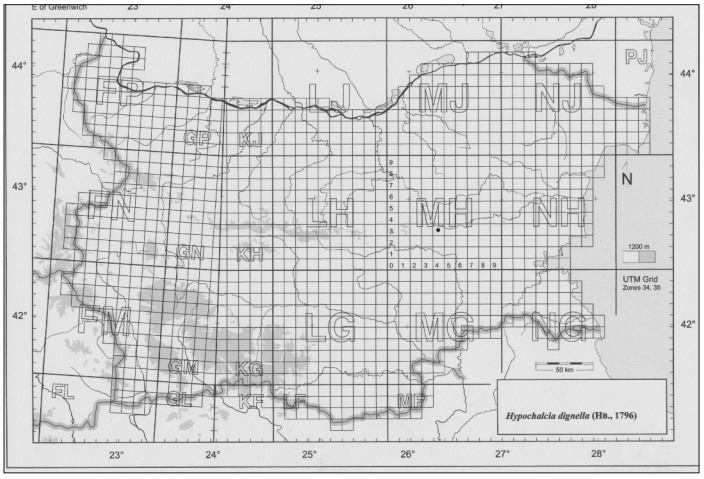
Distribution of *Phycita torrenti* Agenjo, 1963



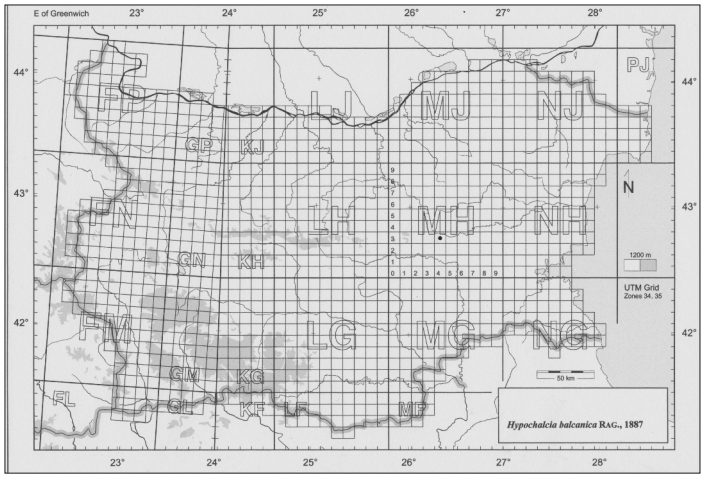
Distribution of *Phycita roborella* ([Denis & Schiffermüller], 1775)



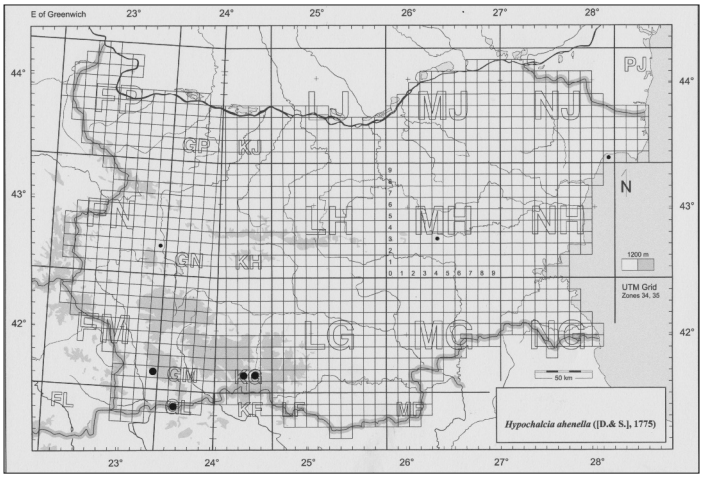
Distribution of *Phycita coronatella* (Guenée, 1845)



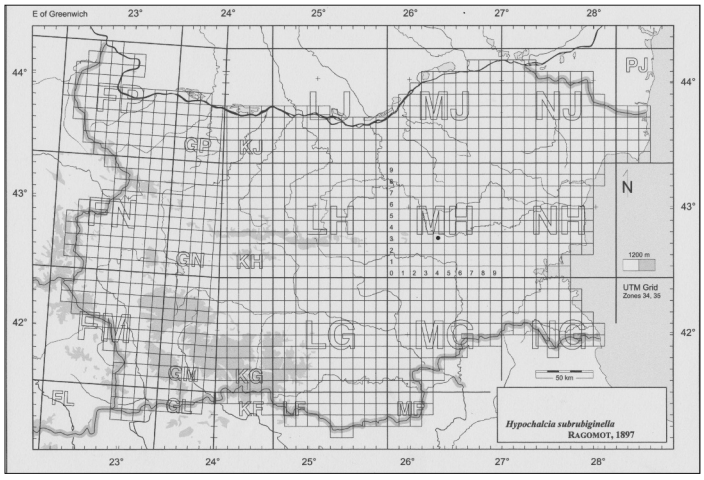
Distribution of *Hypochalcia dignella* (Hübner, 1796)



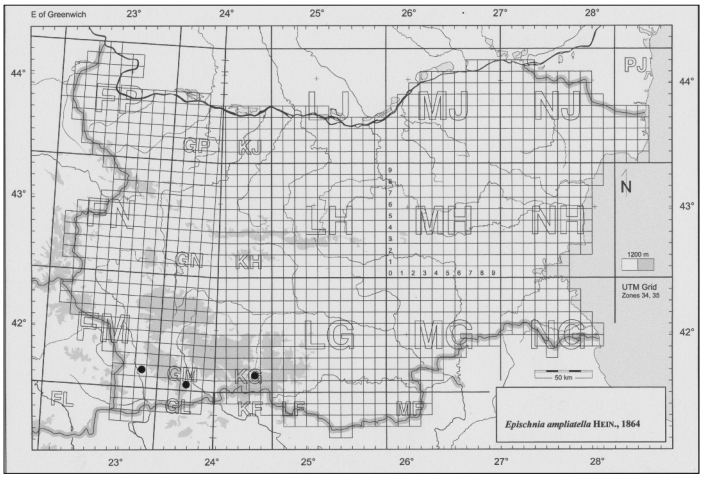
Distribution of *Hypochalcia balcanica* RAGONOT, 1887



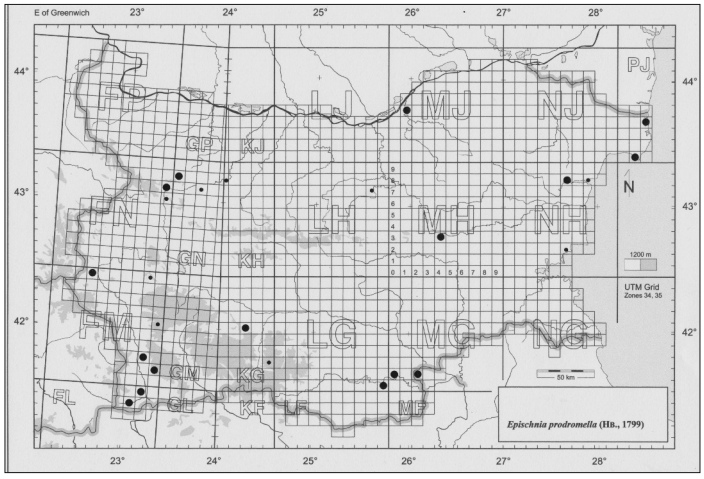
Distribution of *Hypochalcia ahenella* ([DENIS & SCHIFFERMÜLLER], 1775)



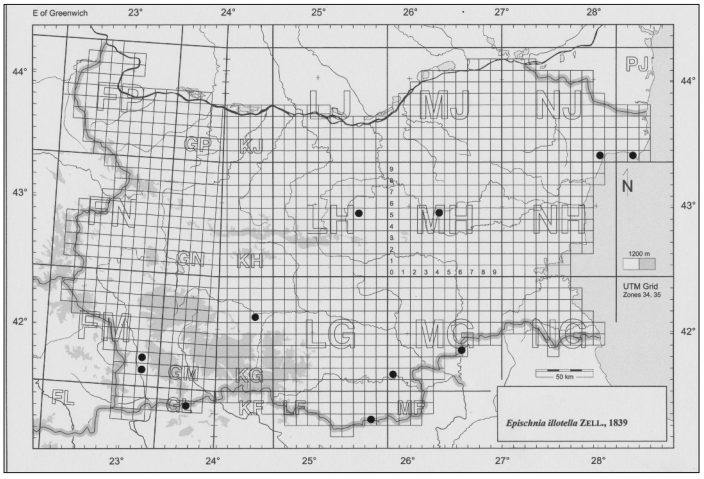
Distribution of *Hypochalcia subrubiginella* RAGONOT, 1897



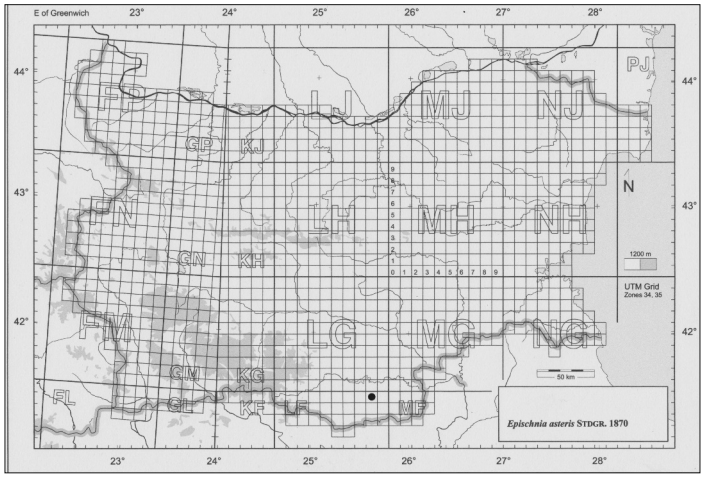
Distribution of *Epischnia ampliatella* HEINEMANN, 1864



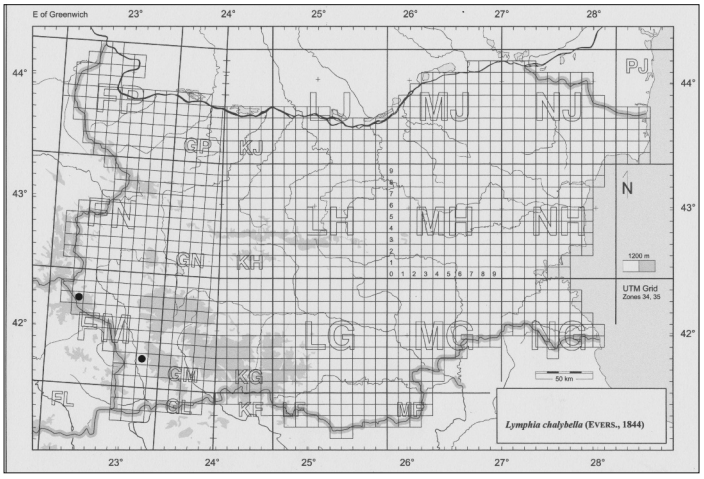
Distribution of *Epischnia prodromella* (HÜBNER, 1799)



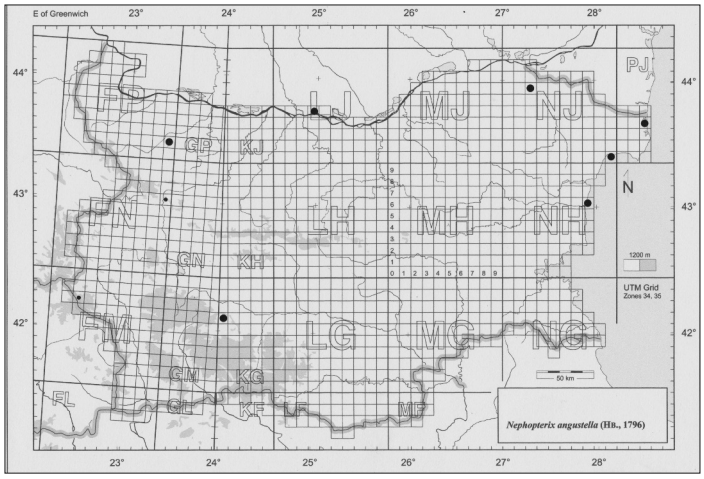
Distribution of *Epischnia illotella* ZELLER, 1839



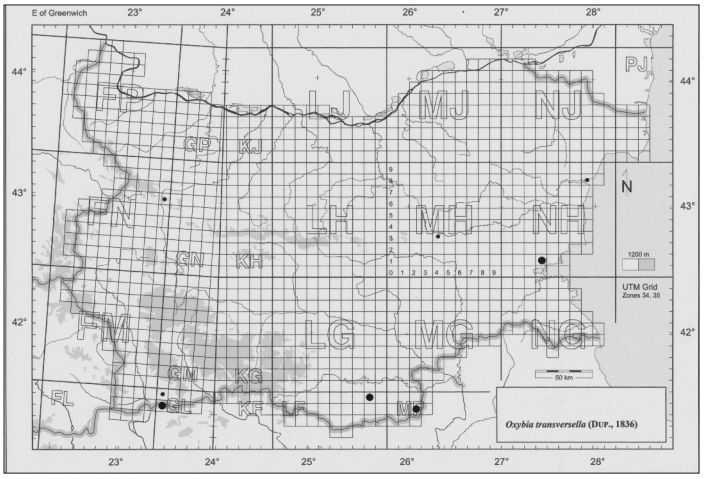
Distribution of *Epischnia asteris* STAUDINGER 1870



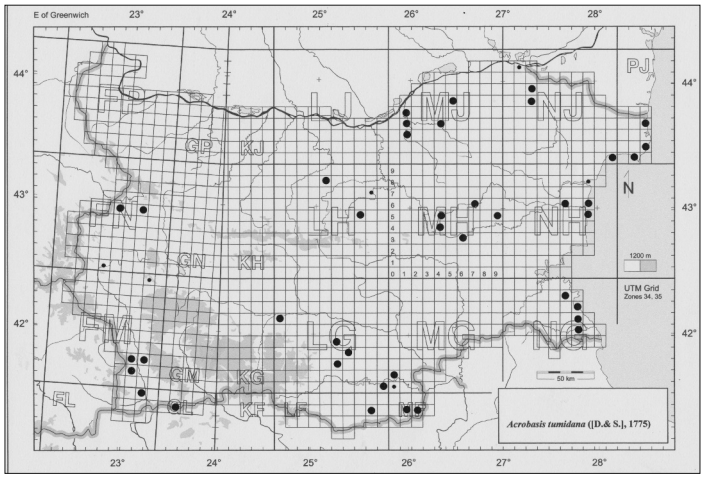
Distribution of *Lymphia chalybella* (EVERSMANN, 1844)



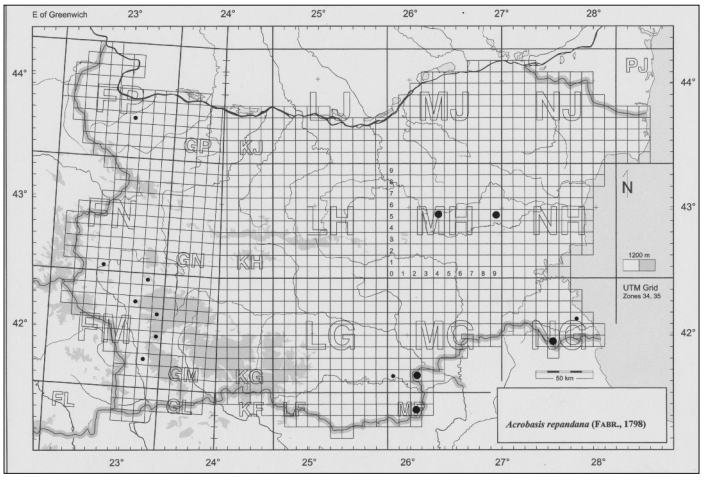
Distribution of *Nephopterix angustella* (Hübner, 1796)



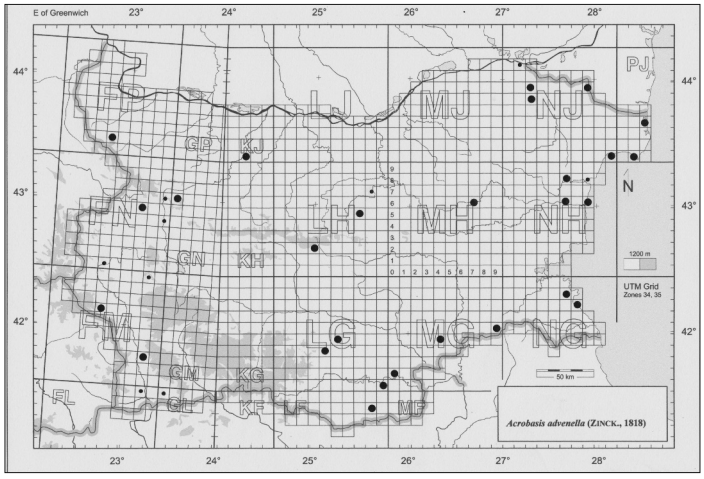
Distribution of *Oxybia transversella* (Duponchel, 1836)



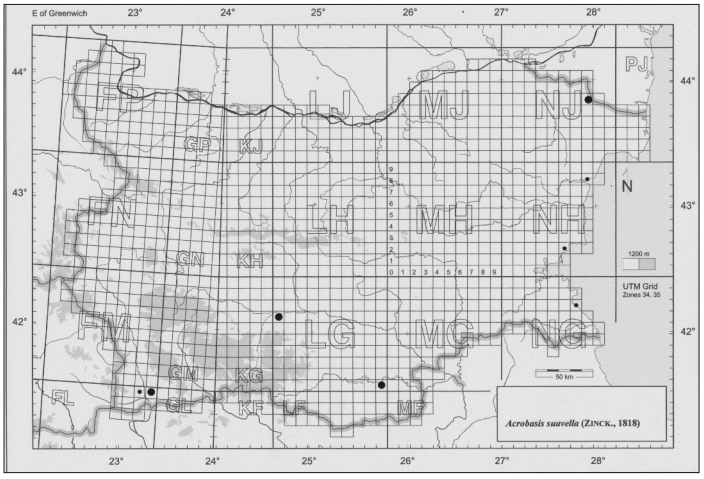
Distribution of *Acrobasis tumidana* ([Denis & Schiffermüller], 1775)



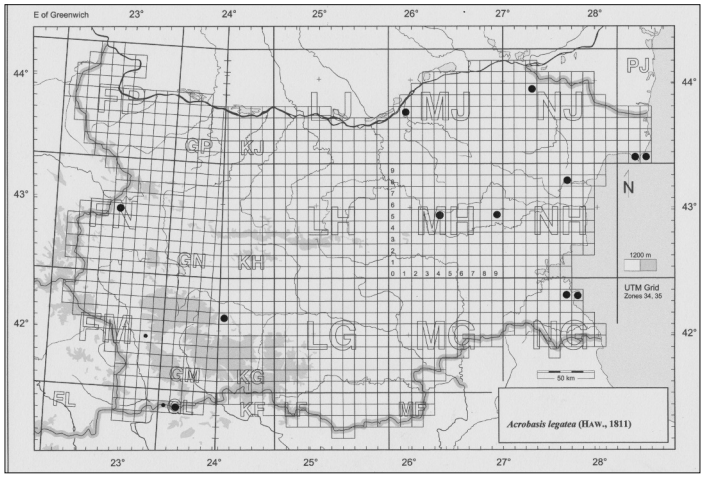
Distribution of *Acrobasis repandana* (Fabricius, 1798)



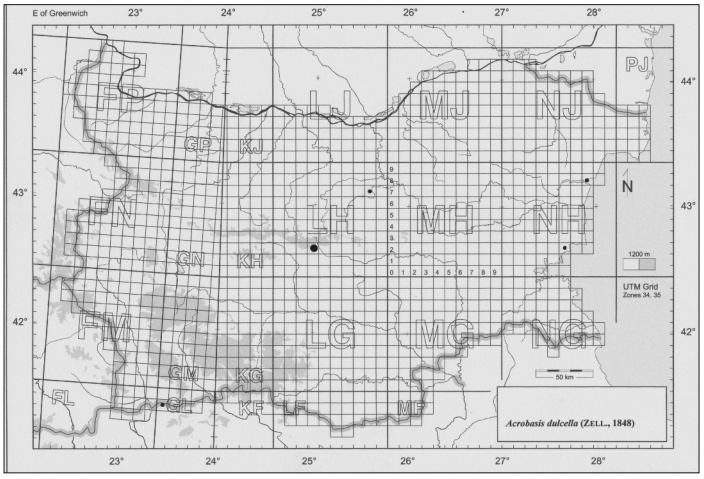
Distribution of *Acrobasis advenella* (Zincken, 1818)



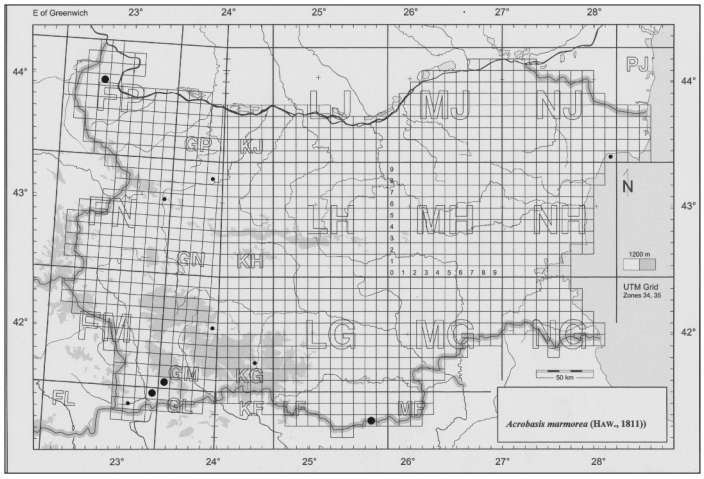
Distribution of *Acrobasis suavella* (Zincken, 1818)



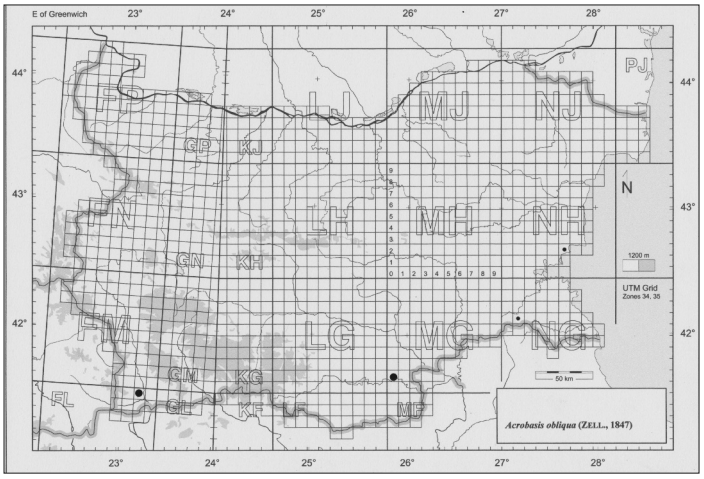
Distribution of *Acrobasis legatea* (Haworth, 1811)



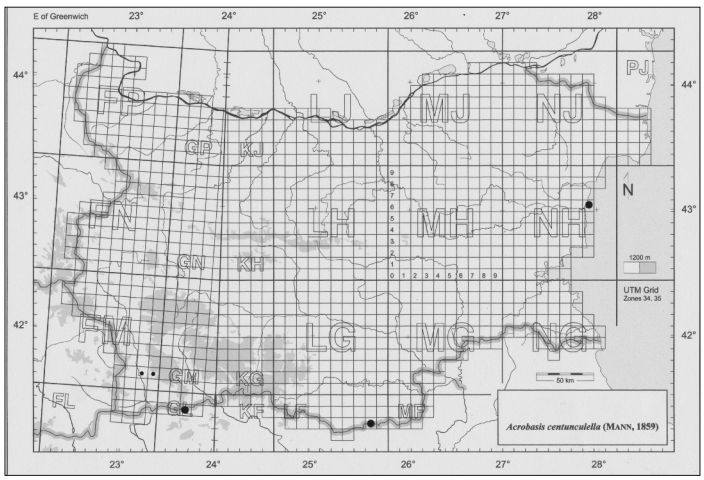
Distribution of *Acrobasis dulcella* (Zeller, 1848)



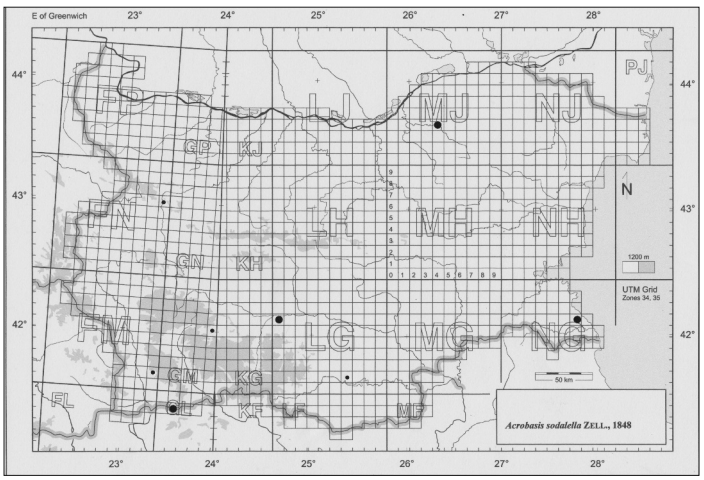
Distribution of *Acrobasis marmorea* (HAWORTH, 1811)



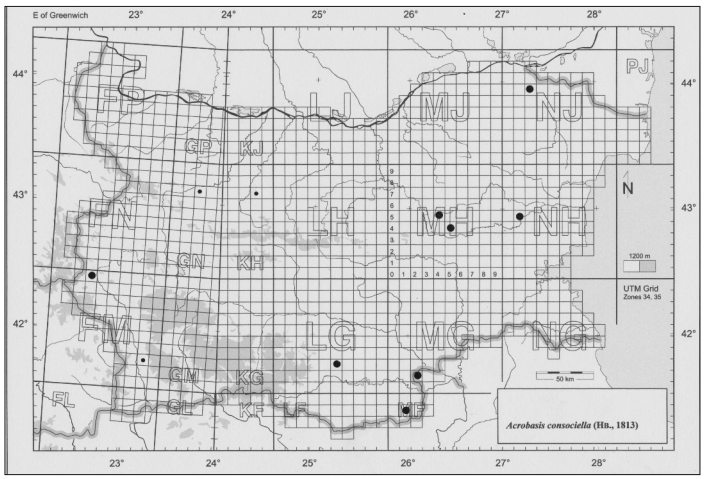
Distribution of *Acrobasis obliqua* (ZELLER, 1847)



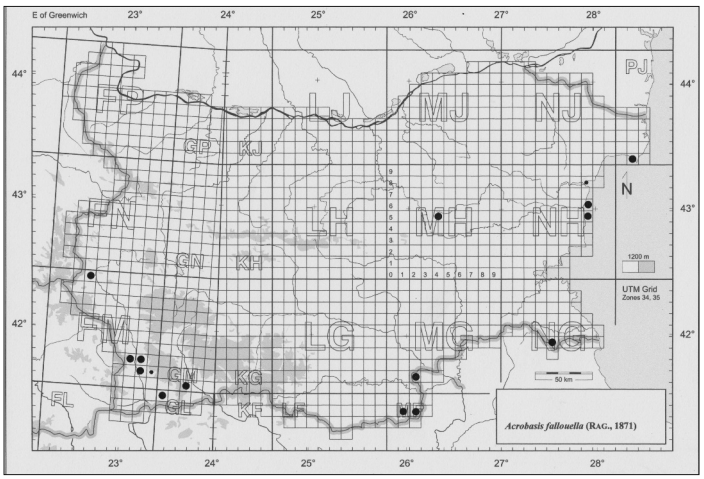
Distribution of *Acrobasis centunculella* (MANN, 1859)



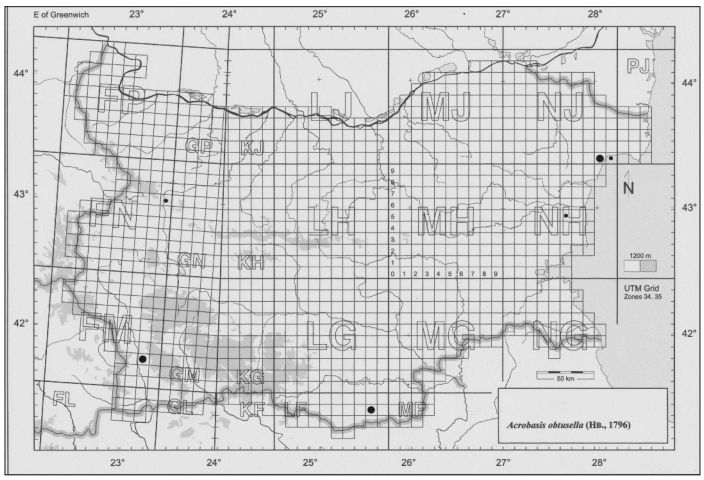
Distribution of *Acrobasis sodalella* ZELLER, 1848



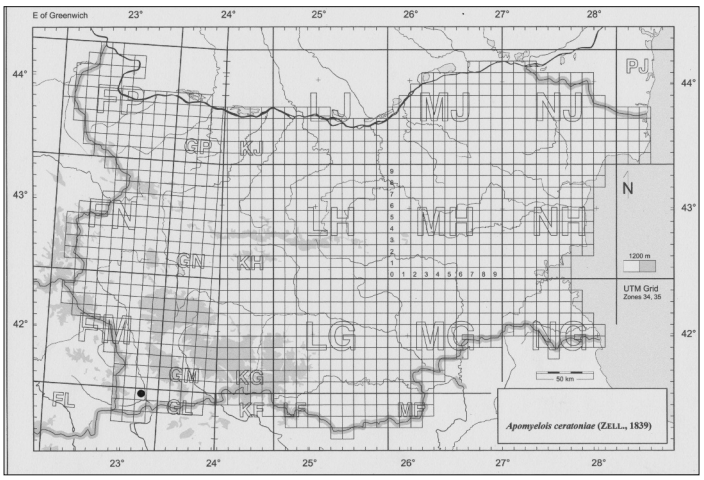
Distribution of *Acrobasis consociella* (HÜBNER, 1813)



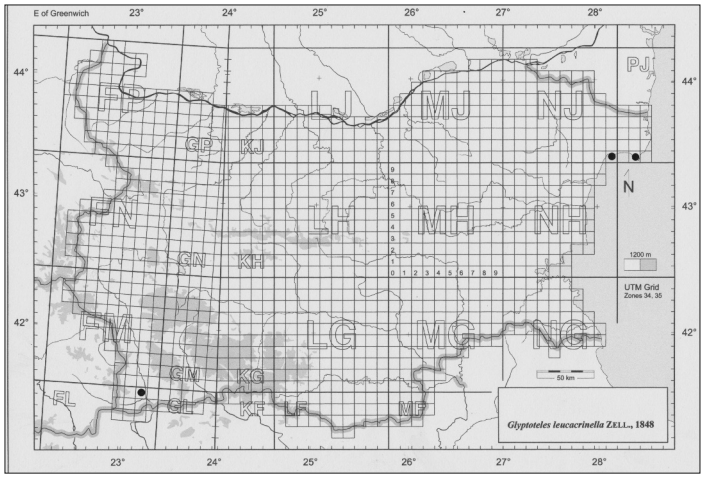
Distribution of *Acrobasis fallouella* (RAGONOT, 1871)



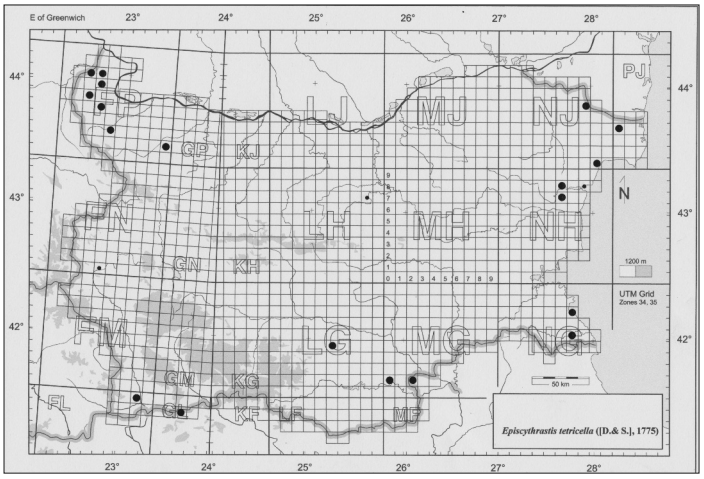
Distribution of *Acrobasis obtusella* (HÜBNER, 1796)



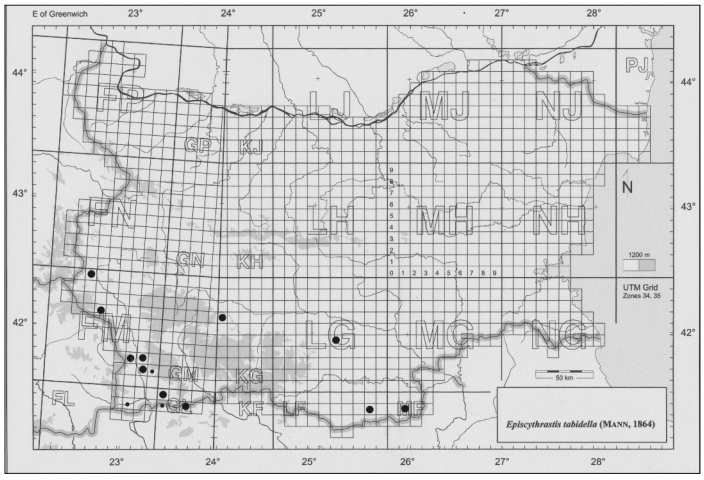
Distribution of *Apomyelois ceratoniae* (ZELLER, 1839)



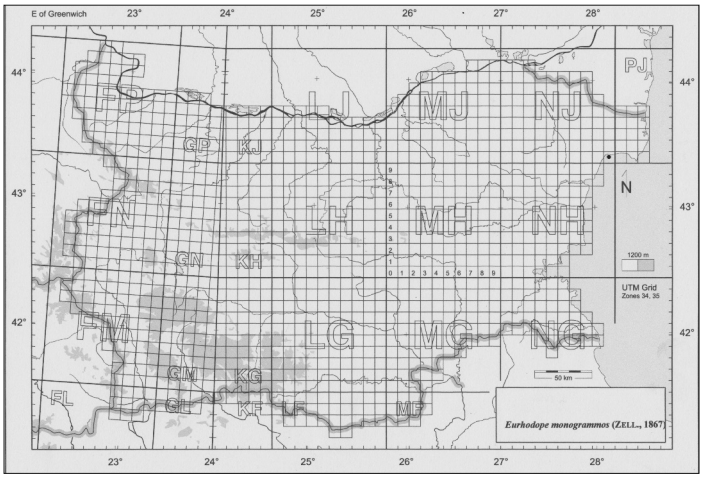
Distribution of *Glyptoteles leucacrinella* ZELLER, 1848



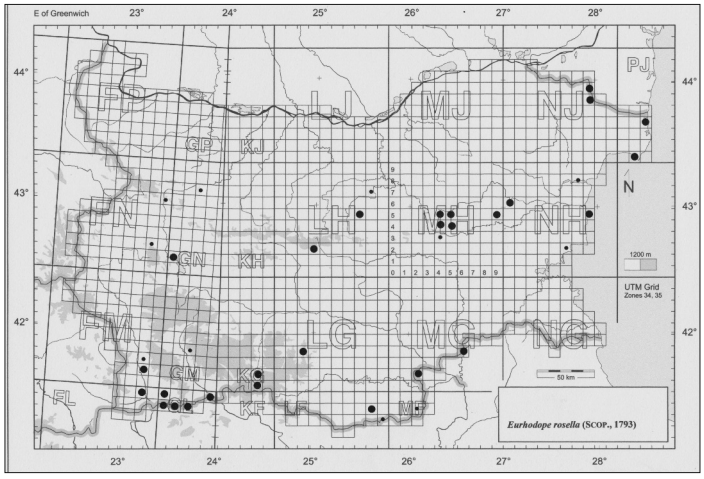
Distribution of *Episcythrastis tetricella* ([DENIS & SCHIFFERMÜLLER], 1775)



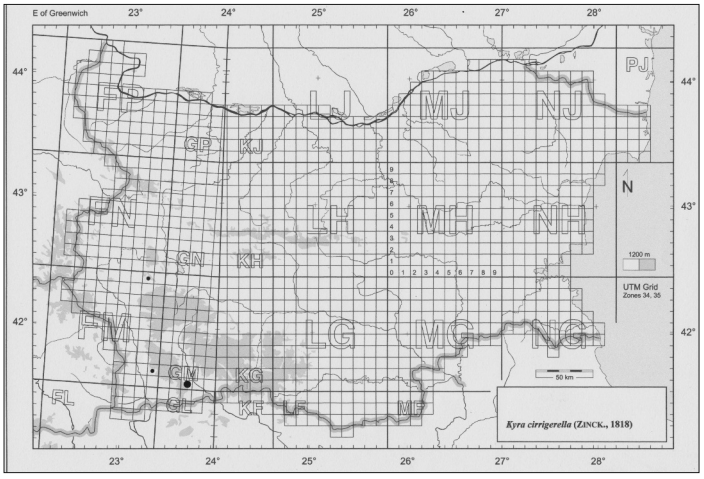
Distribution of *Episcythrastis tabidella* (MANN, 1864)



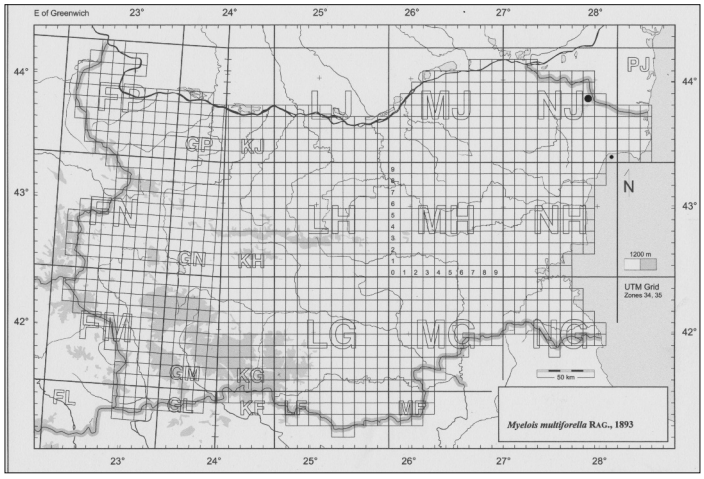
Distribution of *Eurhodope monogrammos* (ZELLER, 1867)



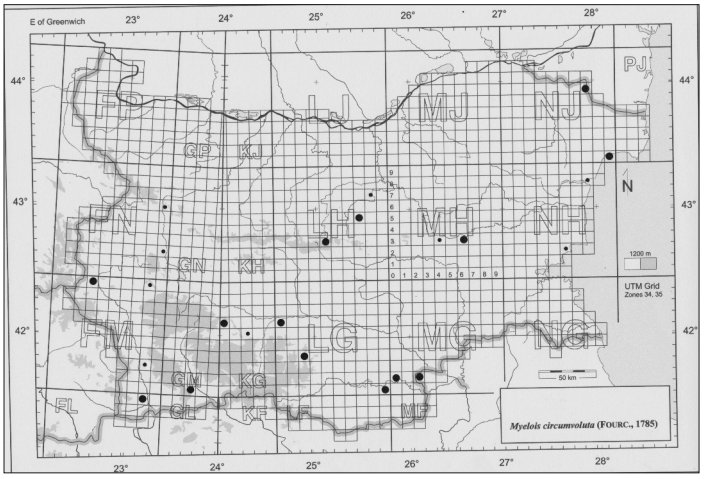
Distribution of *Eurhodope rosella* (SCOPOLI, 1793)



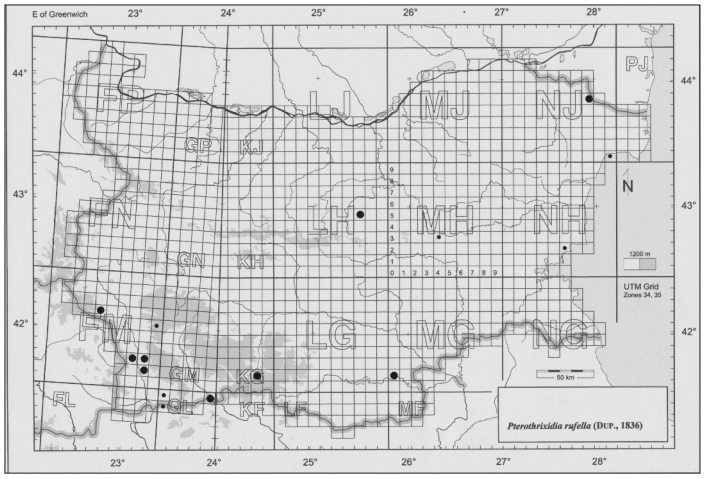
Distribution of *Eurhodope cirrigerella* (ZINCKEN, 1818)



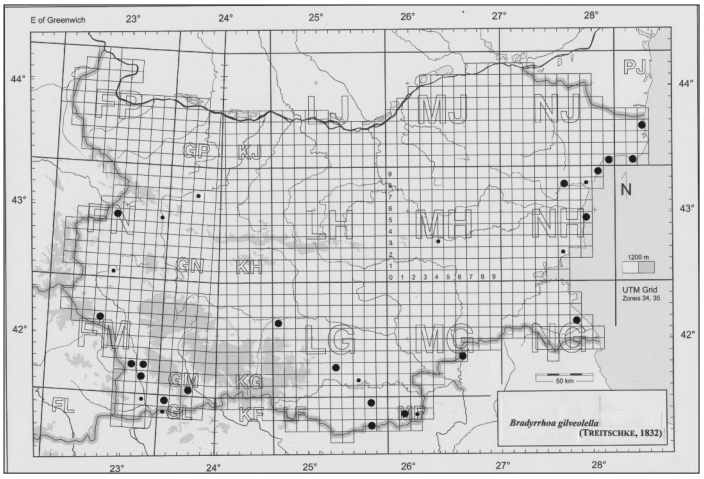
Distribution of *Myelois multiforella* RAGONOT, 1893



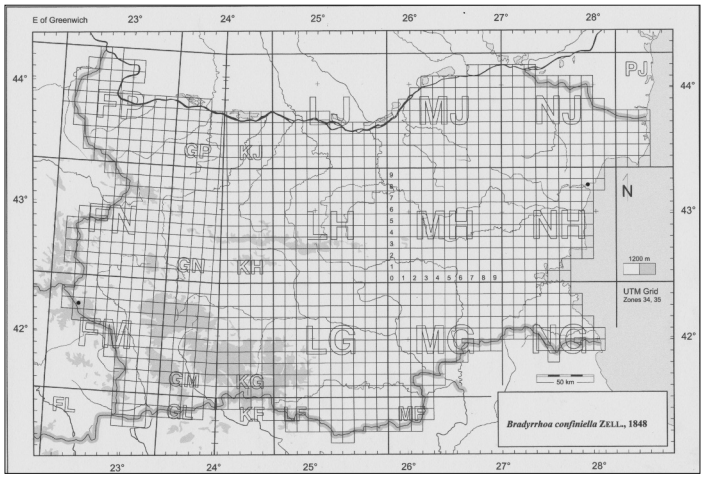
Distribution of *Myelois circumvoluta* (FOURCROY, 1785)



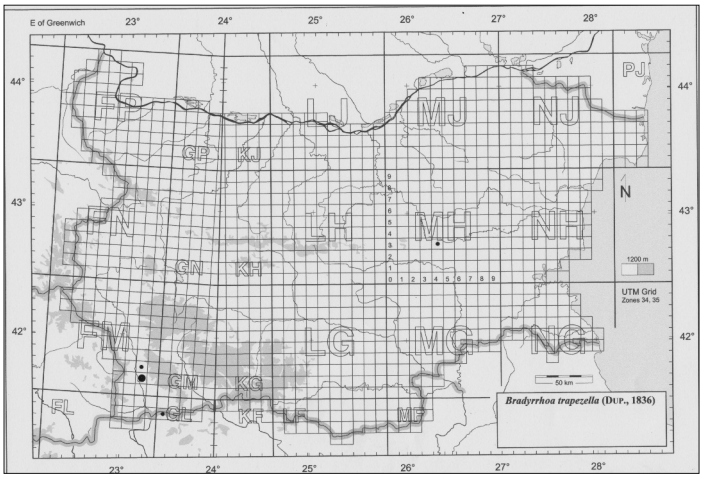
Distribution of *Pterothrixidia rufella* (DUPONCHEL, 1836)



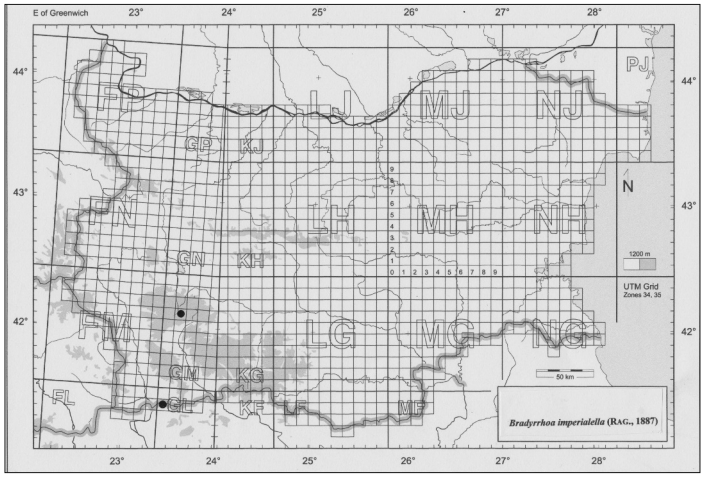
Distribution of *Bradyrrhoa gilveolella* (TREITSCHKE, 1832)



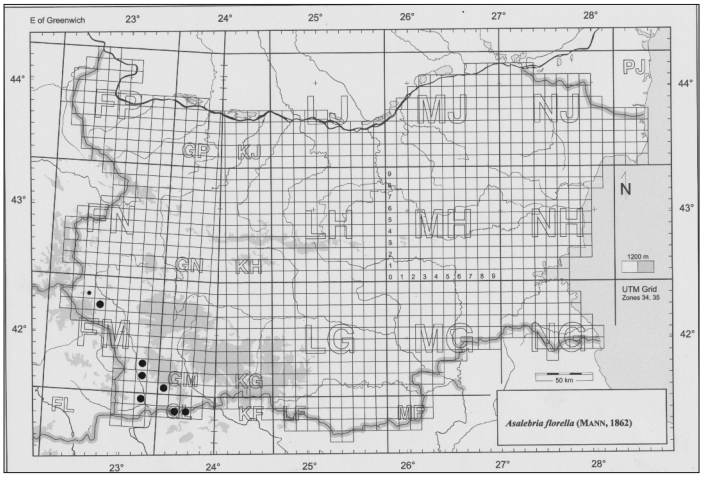
Distribution of *Bradyrrhoa confiniella* ZELLER, 1848



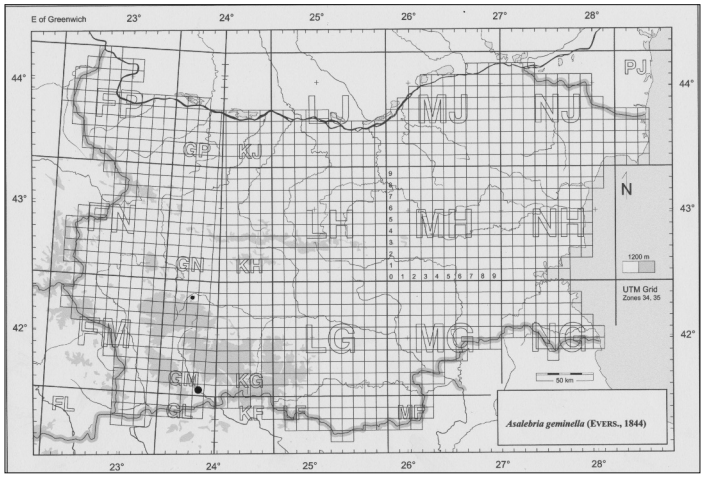
Distribution of *Bradyrrhoa trapezella* (DUPONCHEL, 1836)



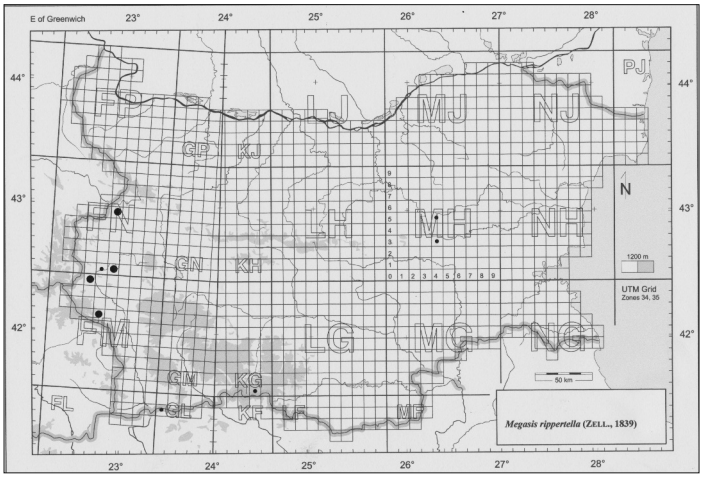
Distribution of *Bradyrrhoa imperialella* (RAGONOT, 1887) comb. nov.



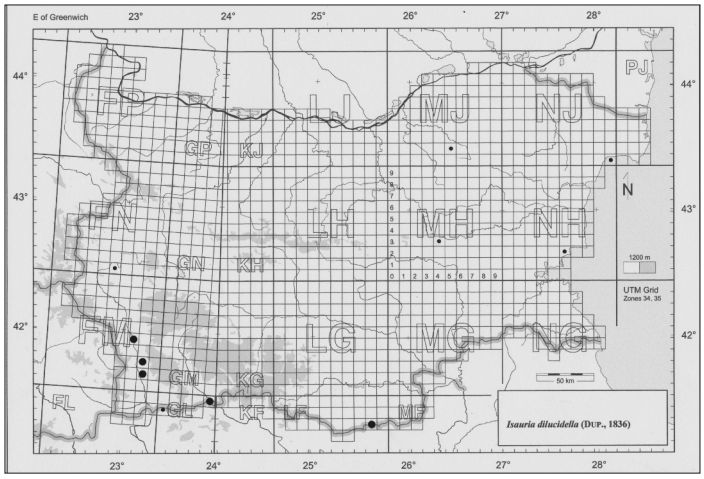
Distribution of *Asalebria florella* (MANN, 1862)



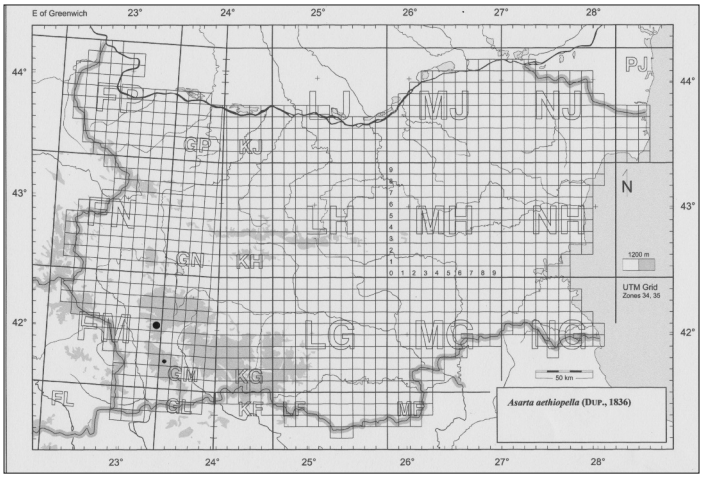
Distribution of *Asalebria geminella* (EVERSMANN, 1844)



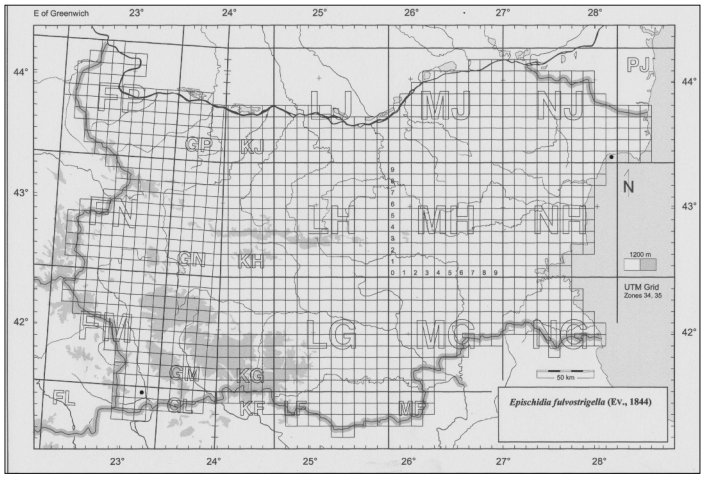
Distribution of *Megasis rippertella* (ZELLER, 1839)



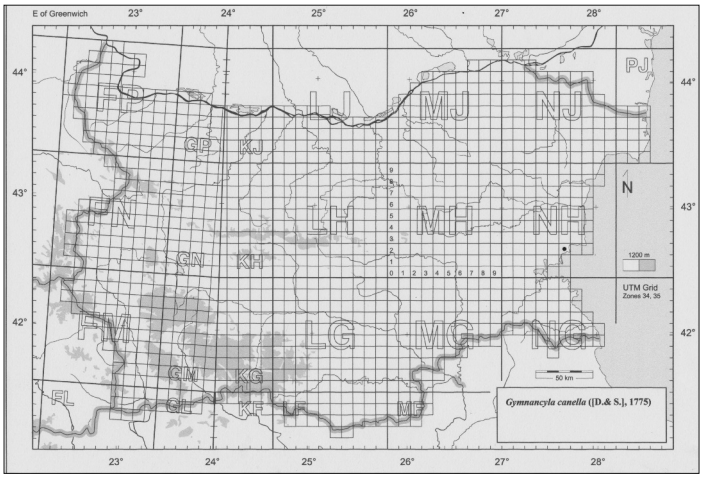
Distribution of *Isauria dilucidella* (DUPONCHEL, 1836)



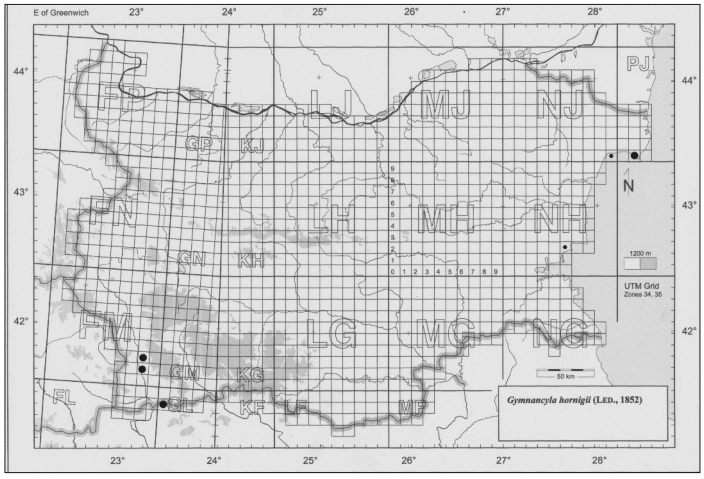
Distribution of *Asarta aethiopella* (DUPONCHEL, 1836)



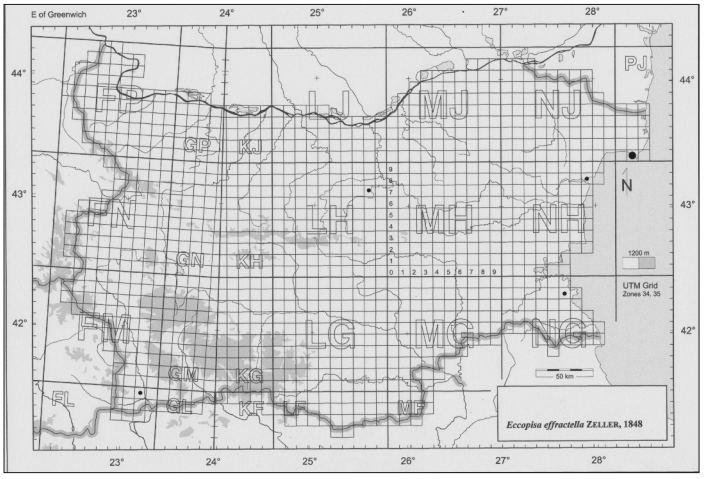
Distribution of *Epischidia fulvostrigella* (EVERSMANN, 1844)



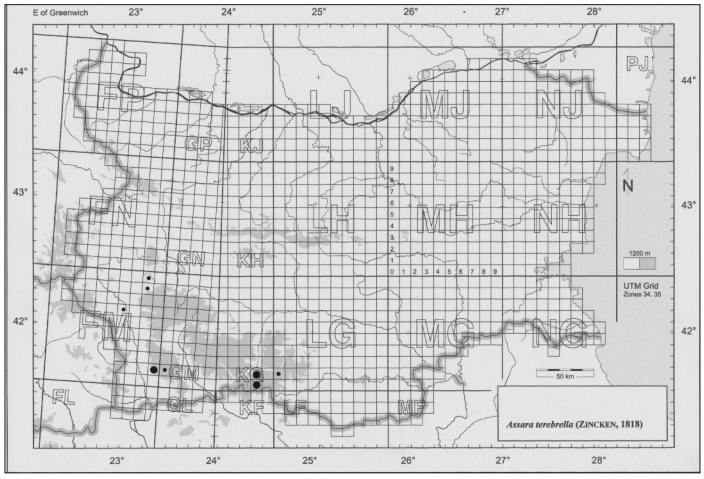
Distribution of *Gymnancyla canella* ([DENIS & SCHIFFERMÜLLER], 1775)



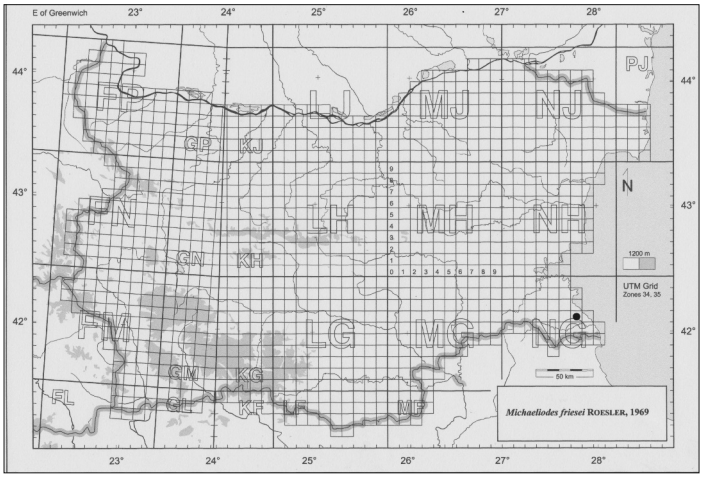
Distribution of *Gymnancyla hornigii* (LEDERER, 1852)



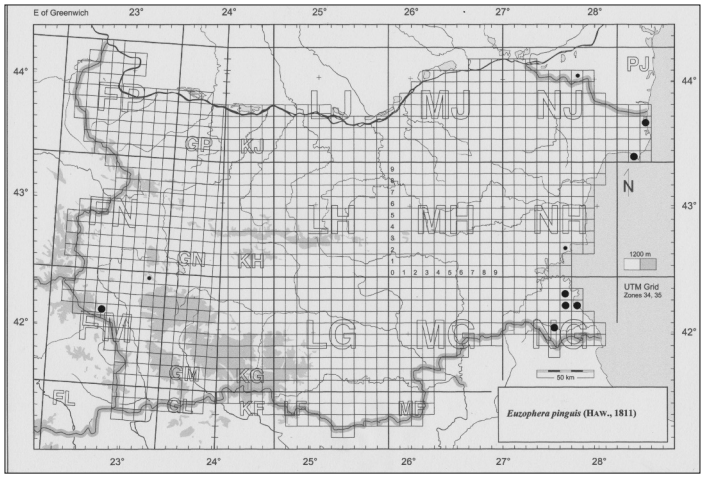
Distribution of *Eccopisa effractella* ZELLER, 1848



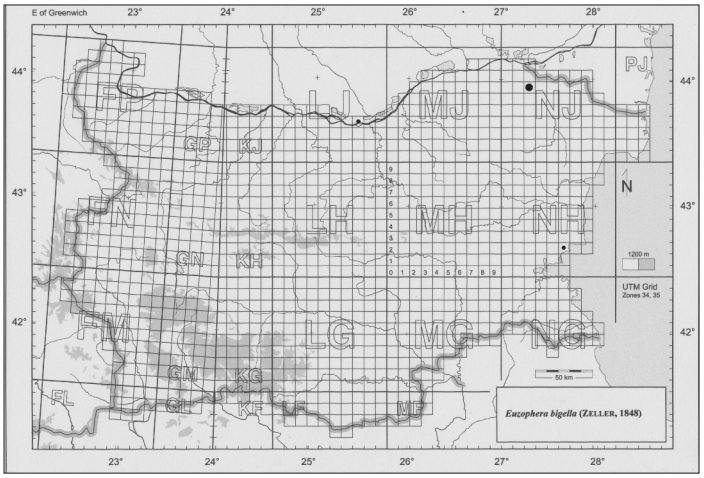
Distribution of *Assara terebrella* (ZINCKEN, 1818)



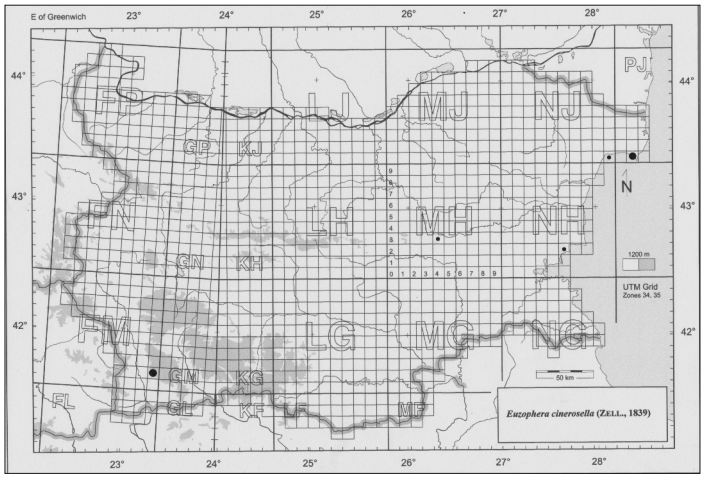
Distribution of *Michaeliodes friesei* ROESLER, 1969



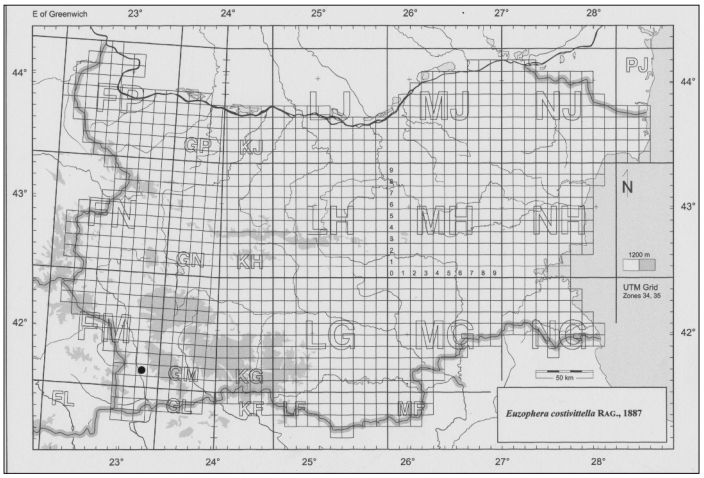
Distribution of *Euzophera pinguis* (Haworth, 1811)



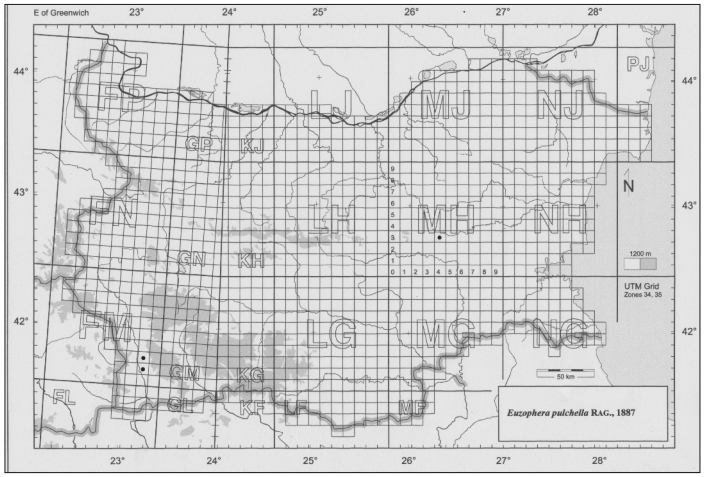
Distribution of *Euzophera bigella* (Zeller, 1848)



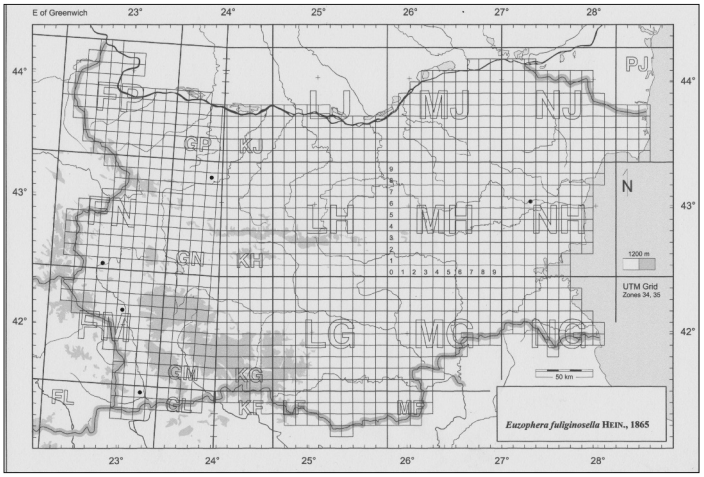
Distribution of *Euzophera cinerosella* (Zeller, 1839)



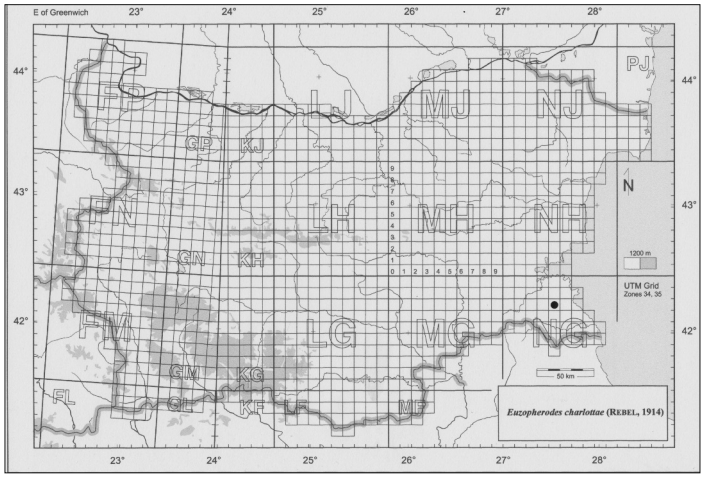
Distribution of *Euzophera costivittella* Ragonot, 1887



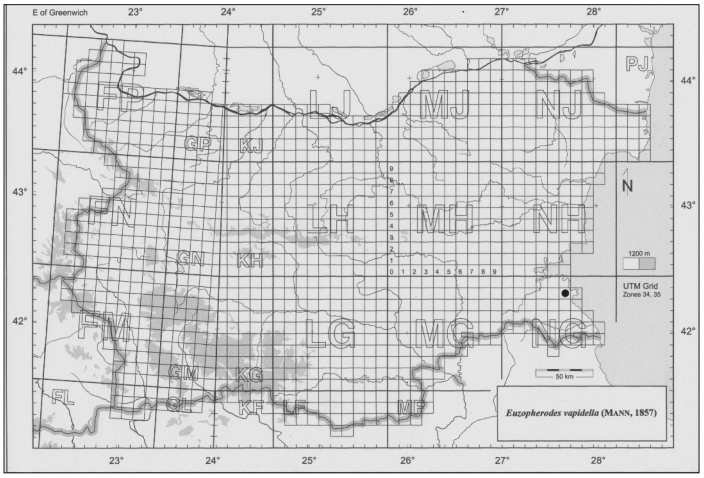
Distribution of *Euzophera pulchella* Ragonot, 1887



Distribution of *Euzophera fuliginosella* Heinemann, 1865



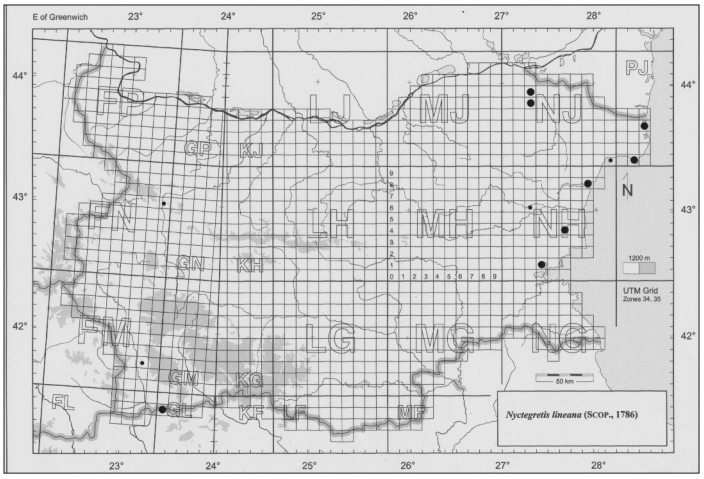
Distribution of *Euzopherodes charlottae* (Rebel, 1914)



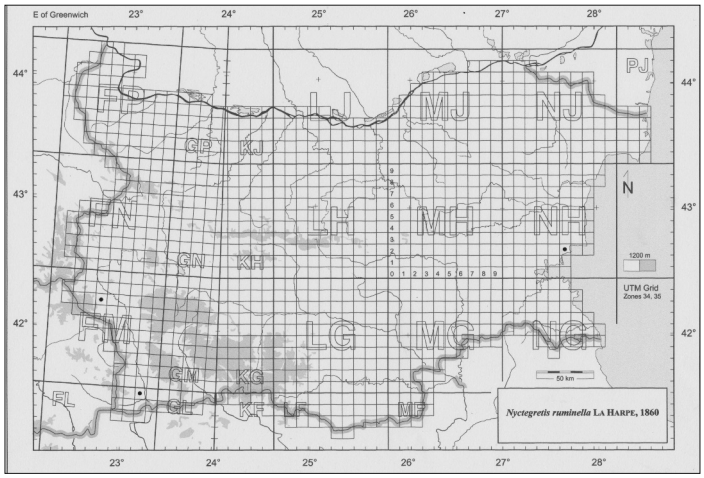
Distribution of *Euzopherodes vapidella* (Mann, 1857)

NO MAP

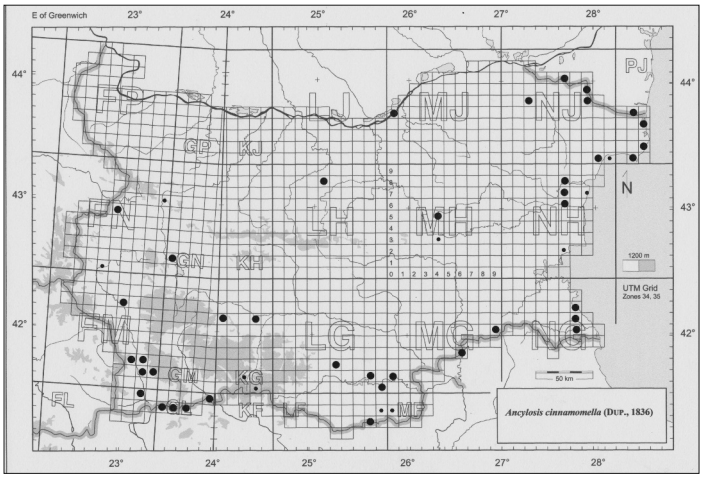
Distribution of *Euzopherodes lutisignella* (MANN, 1869)



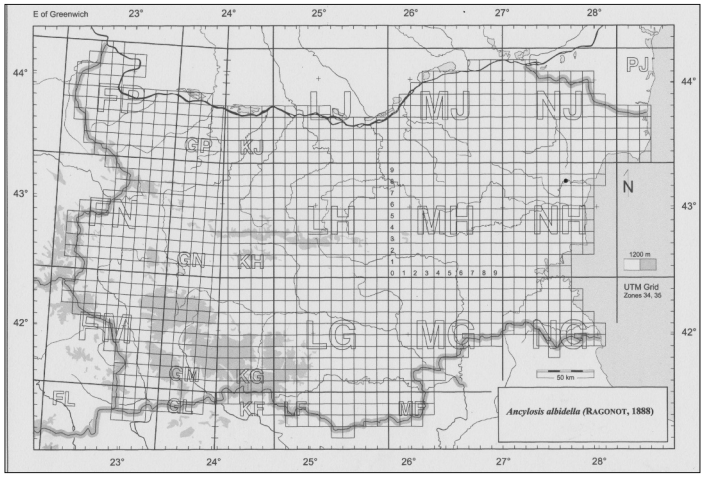
Distribution of *Nyctegretis lineana* (SCOPOLI, 1786)



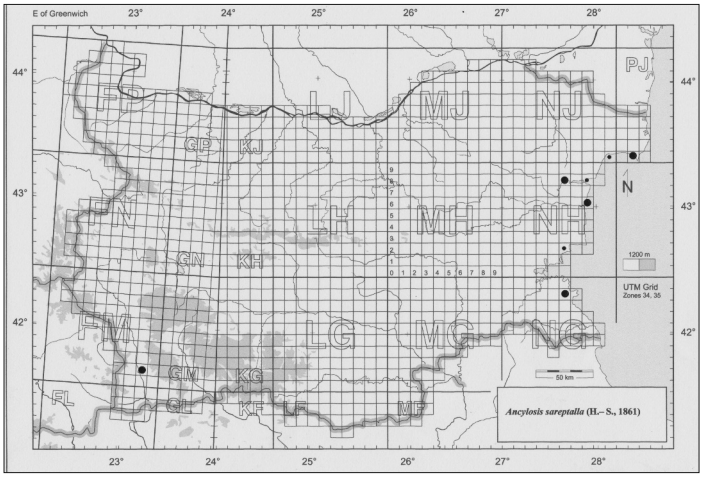
Distribution of *Nyctegretis ruminella* LA HARPE, 1860



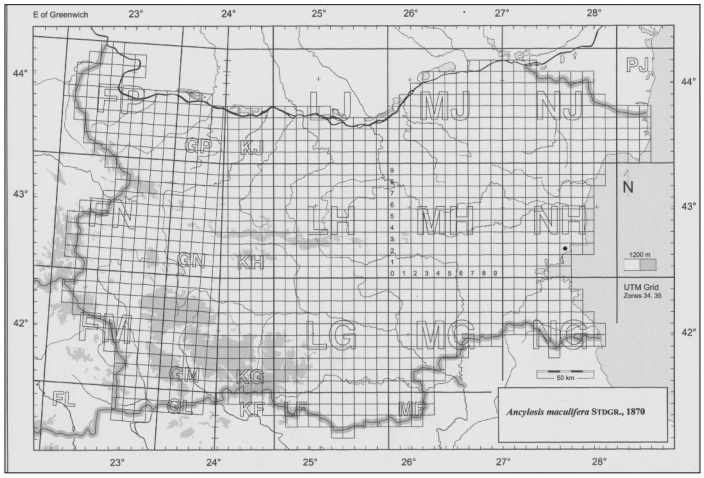
Distribution of *Ancylosis cinnamomella* (DUPONCHEL, 1836)



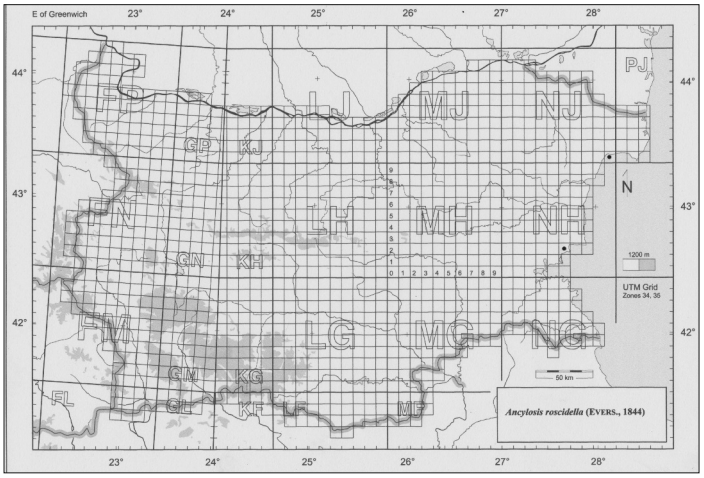
Distribution of *Ancylosis albidella (*RAGONOT, 1888)



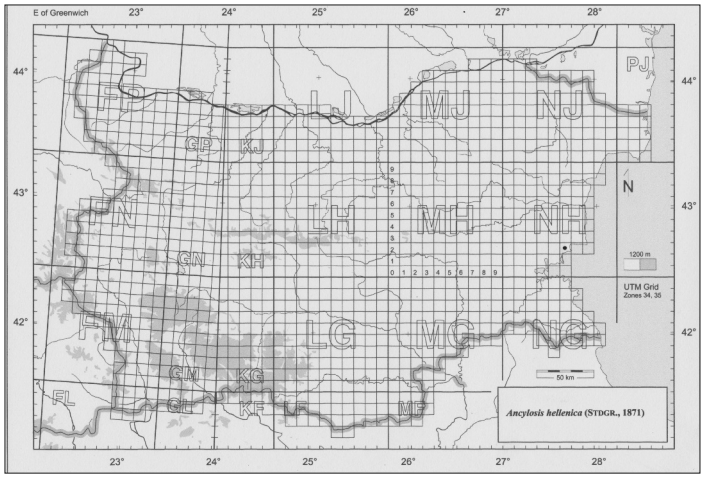
Distribution of *Ancylosis sareptalla* (HERRICH-SCHÄFFER, 1861)



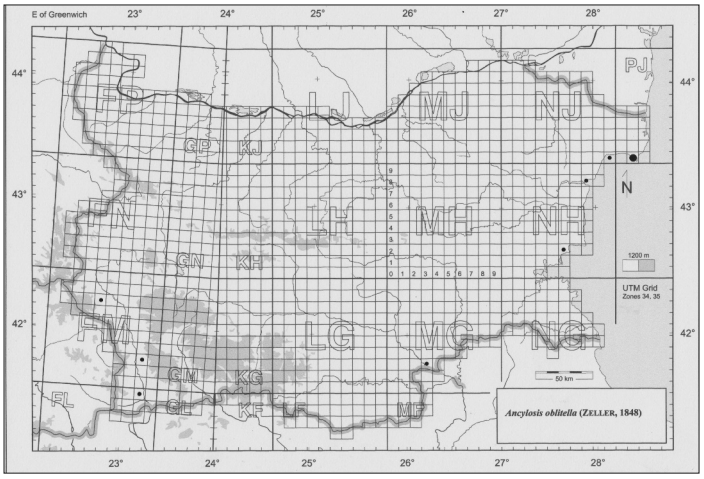
Distribution of *Ancylosis maculifera* STAUDINGER, 1870



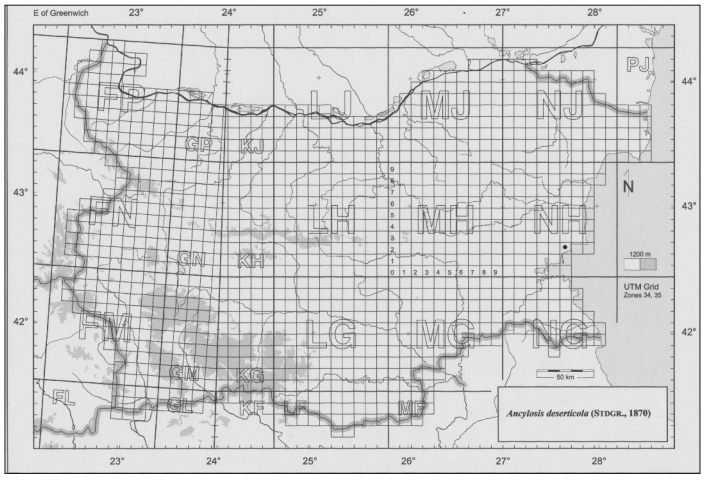
Distribution of *Ancylosis roscidella* (EVERSMANN, 1844)



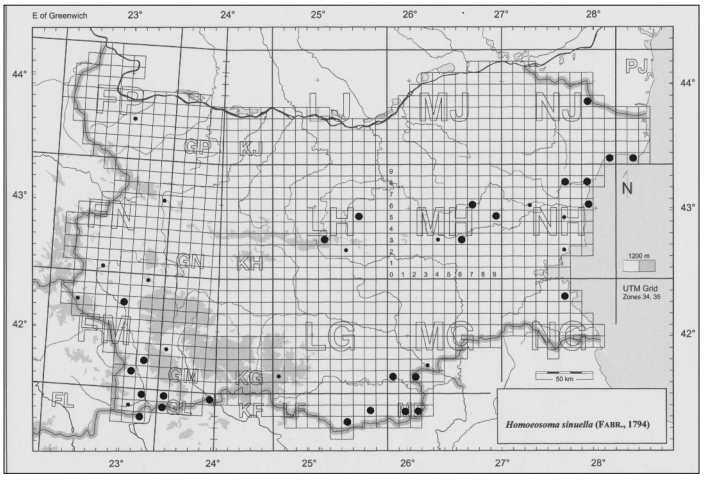
Distribution of *Ancylosis hellenica* (STAUDINGER, 1871)



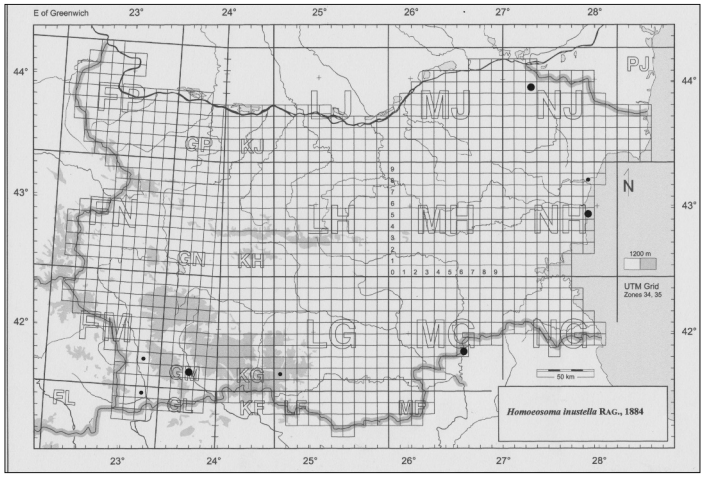
Distribution of *Ancylosis oblitella* (ZELLER, 1848)



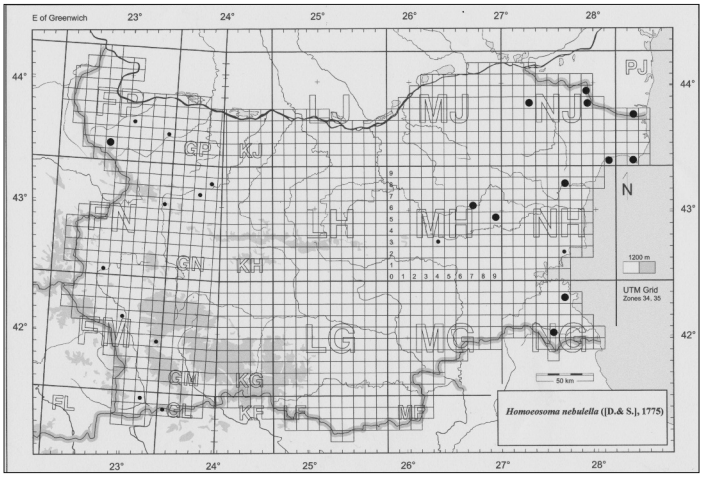
Distribution of *Ancylosis deserticola* (STAUDINGER, 1870)



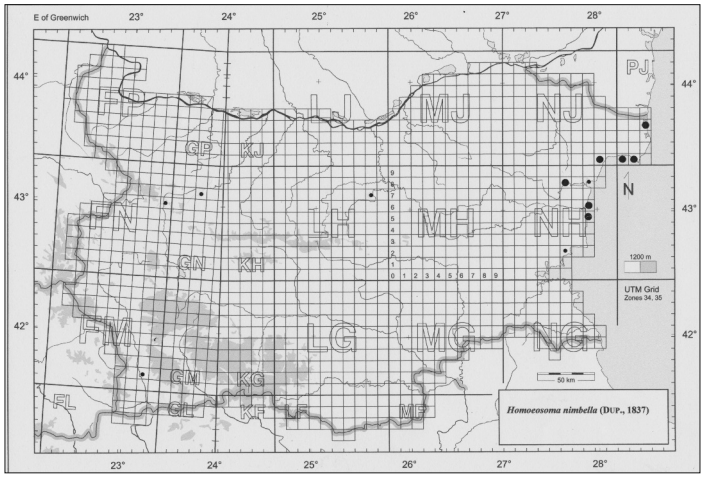
Distribution of *Homoeosoma sinuella* (FABRICIUS, 1794)



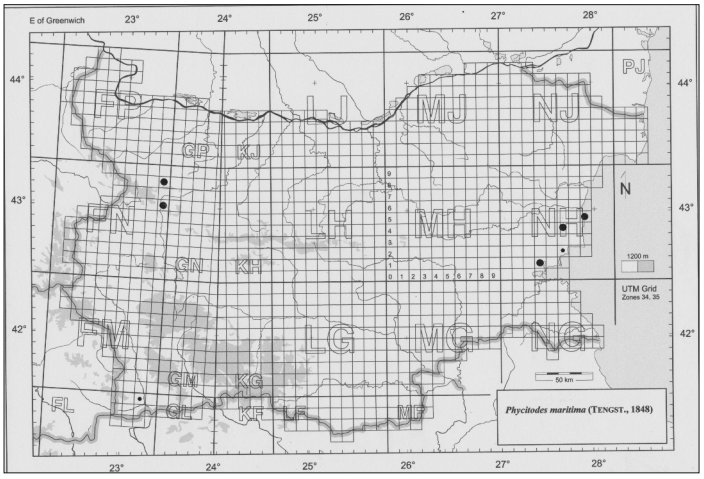
Distribution of *Homoeosoma inustella* RAGONOT, 1884



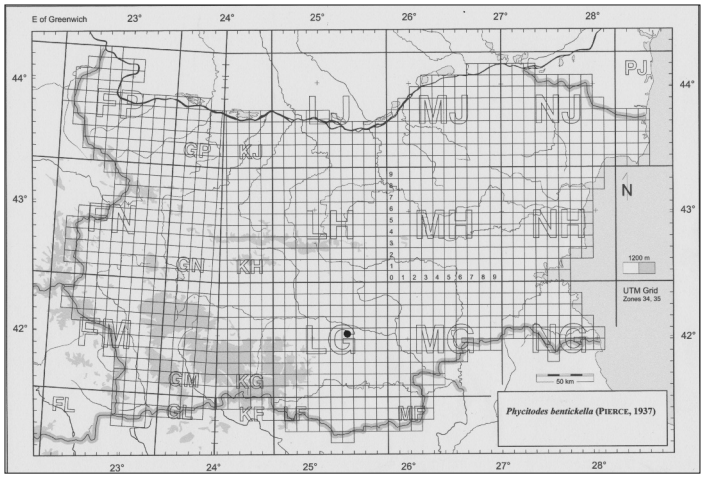
Distribution of *Homoeosoma nebulella* ([DENIS & SCHIFFERMÜLLER], 1775)



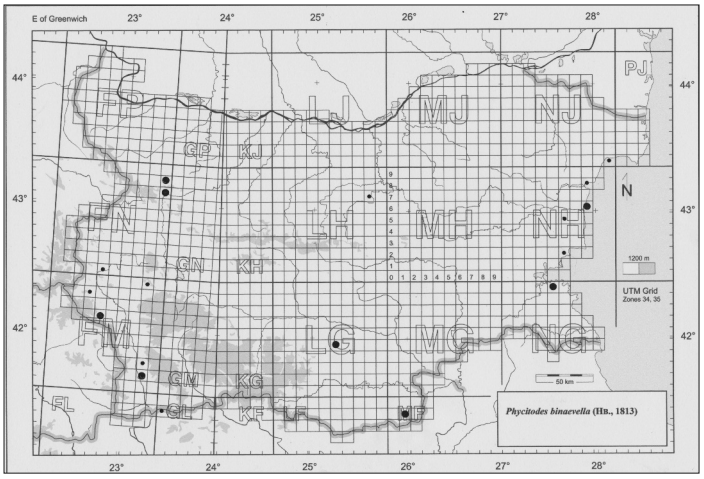
Distribution of *Homoeosoma nimbella* (DUPONCHEL, 1837)



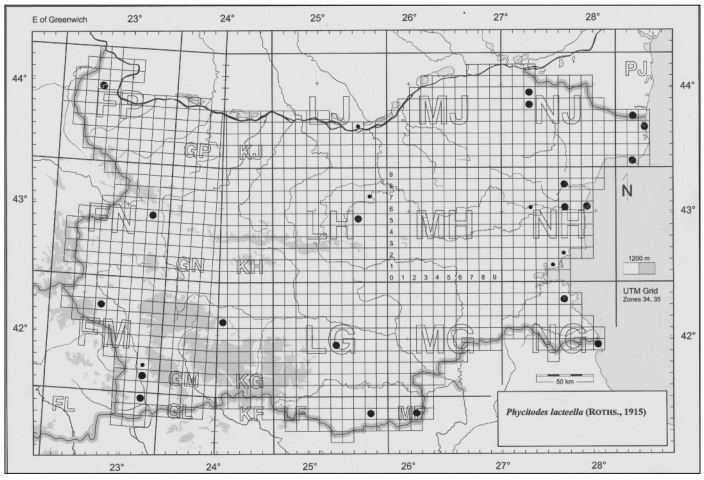
Distribution of *Phycitodes maritima* (TENGSTRÖM, 1848)



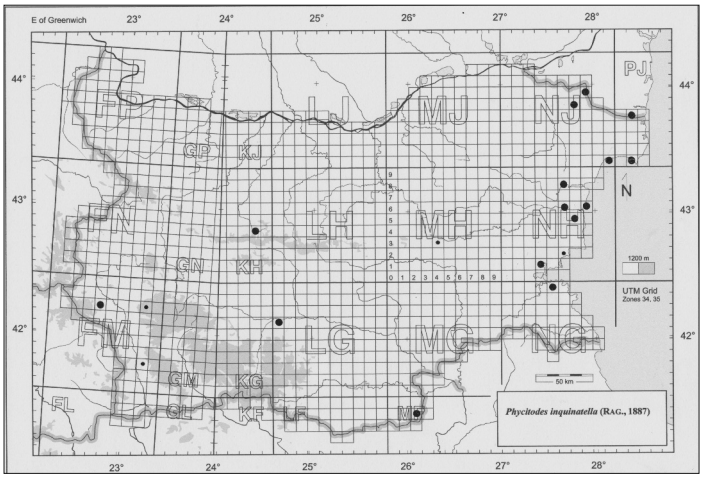
Distribution of *Phycitodes bentickella* (Pierce, 1937)



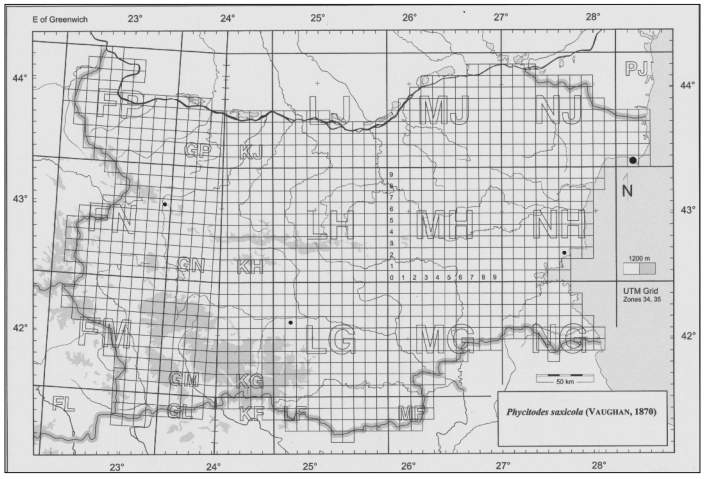
Distribution of *Phycitodes binaevella* (Hübner, 1813)



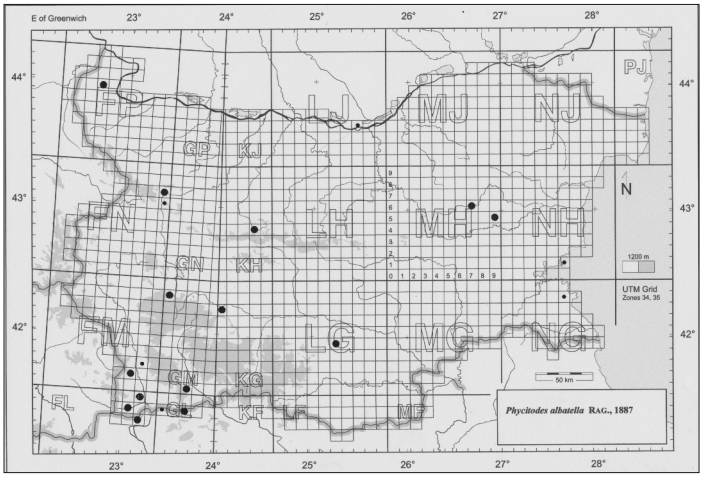
Distribution of *Phycitodes lacteella* (Rothschild, 1915)



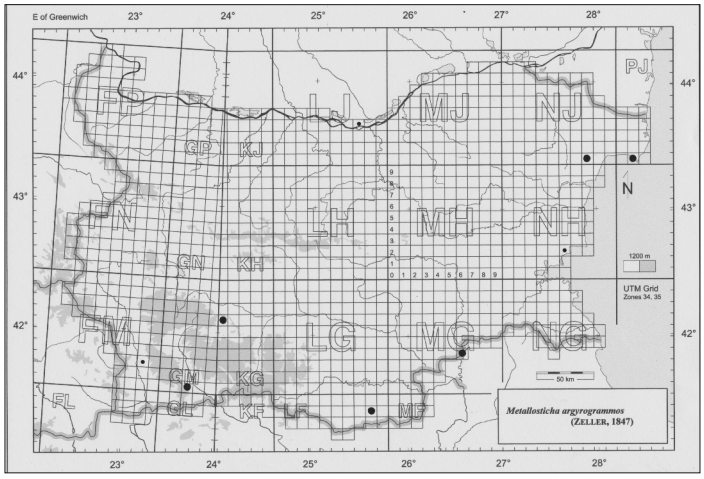
Distribution of *Phycitodes inquinatella* (Ragonot, 1887)



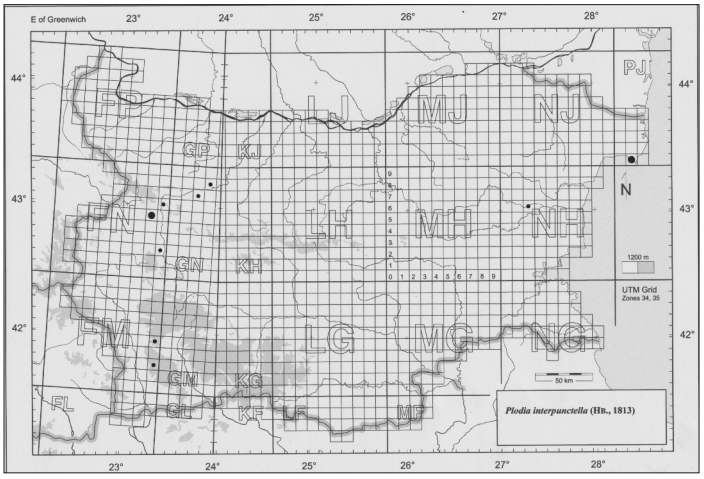
Distribution of *Phycitodes saxicola* (Vaughan, 1870)



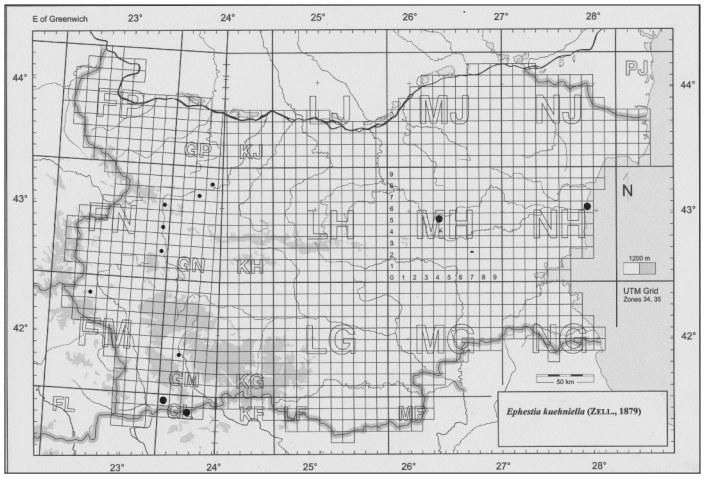
Distribution of *Phycitodes albatella* Ragonot, 1887



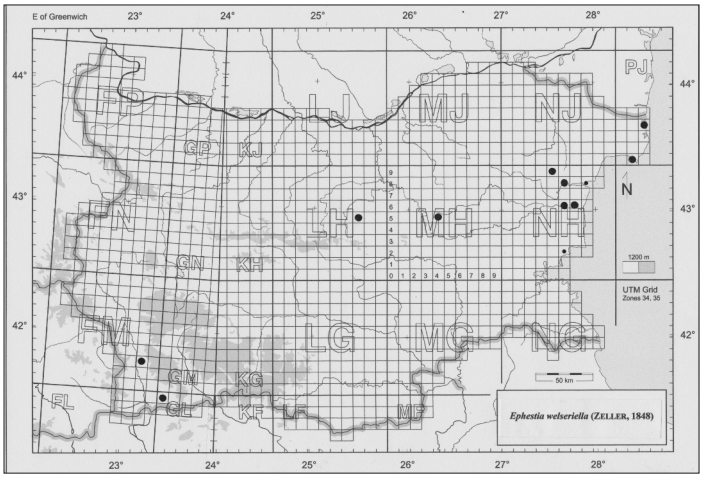
Distribution of *Metallosticha argyrogrammos* (Zeller, 1847)



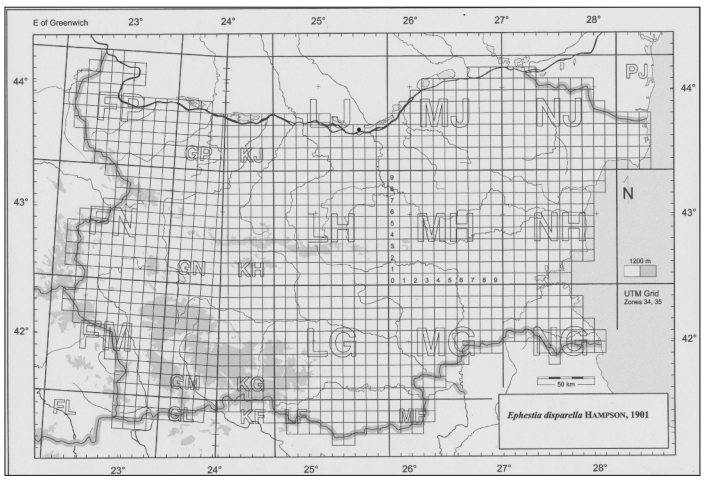
Distribution of *Plodia interpunctella* (Hübner, 1813)



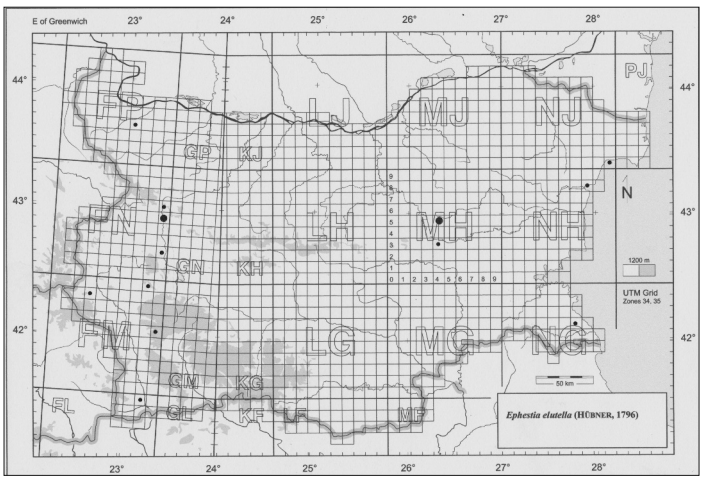
Distribution of *Ephestia kuehniella* (ZELLER, 1879)



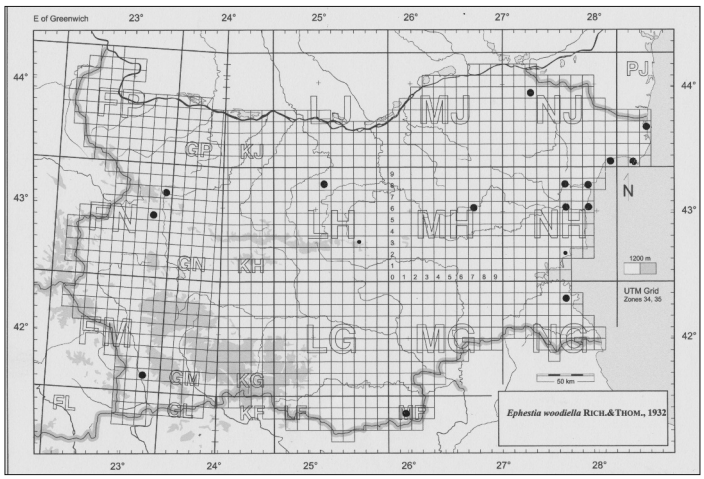
Distribution of *Ephestia welseriella* (ZELLER, 1848)



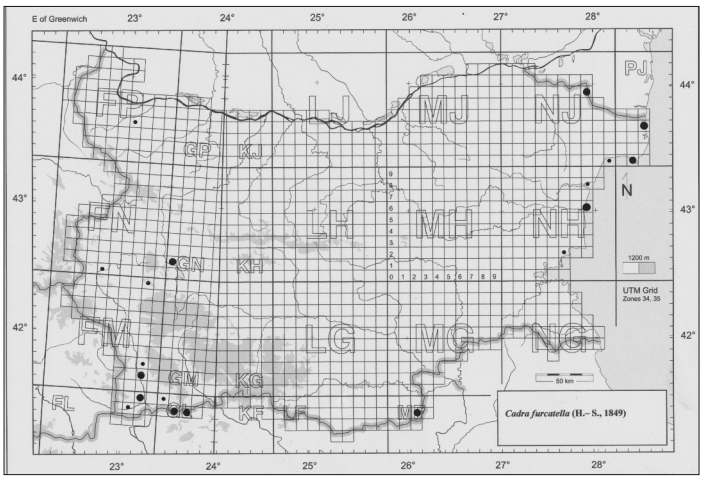
Distribution of *Ephestia disparella* HAMPSON, 1901



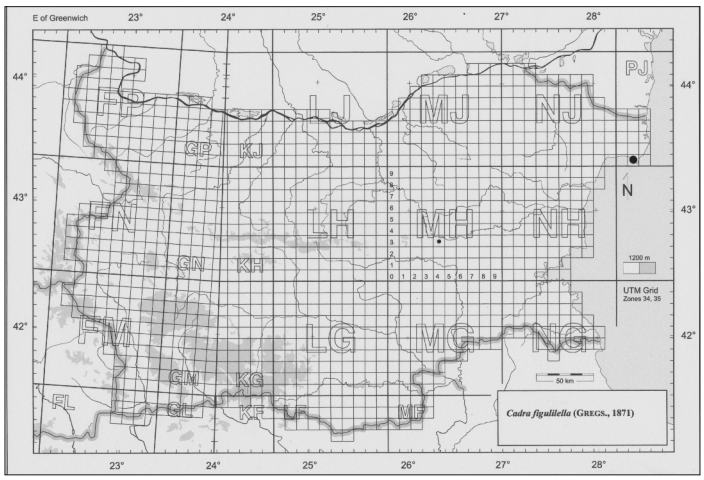
Distribution of *Ephestia elutella* (HÜBNER, 1796)



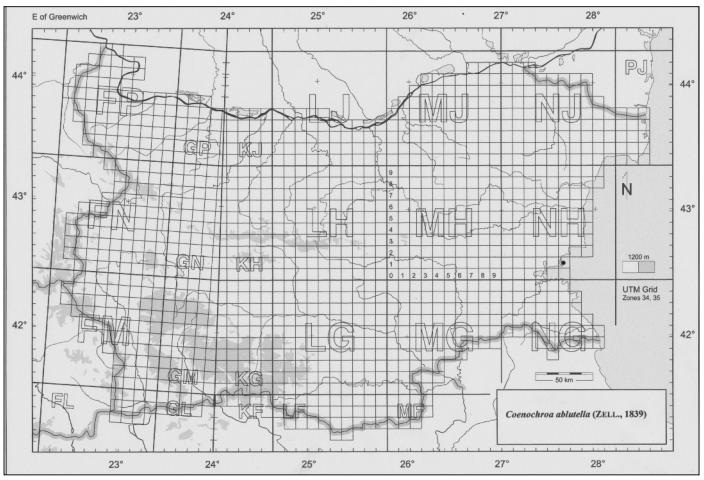
Distribution of *Ephestia woodiella* RICHARDS & THOMSON, 1932



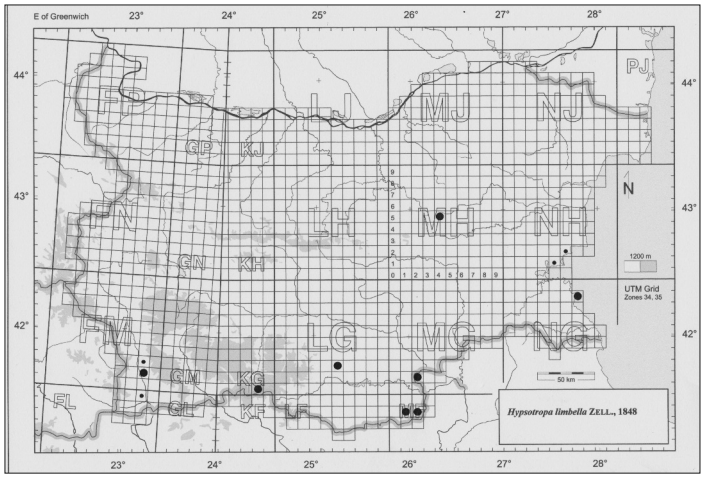
Distribution of *Cadra furcatella* (HERRICH-SCHÄFFER, 1849)



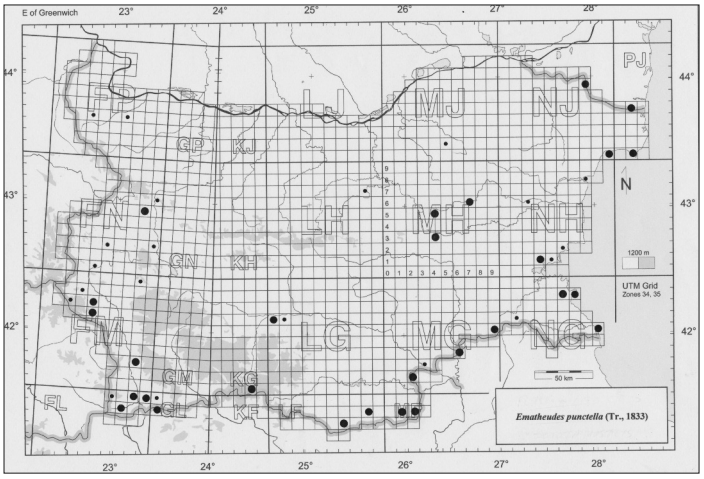
Distribution of *Cadra figulilella* (GREGSON, 1871)



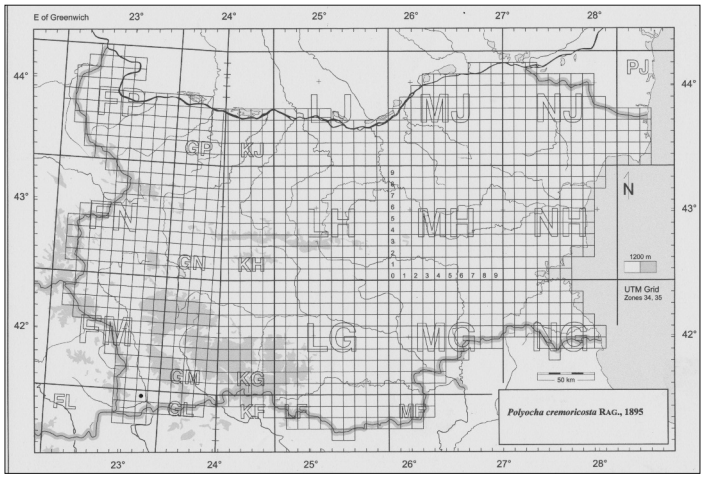
Distribution of *Coenochroa ablutella* (ZELLER, 1839)



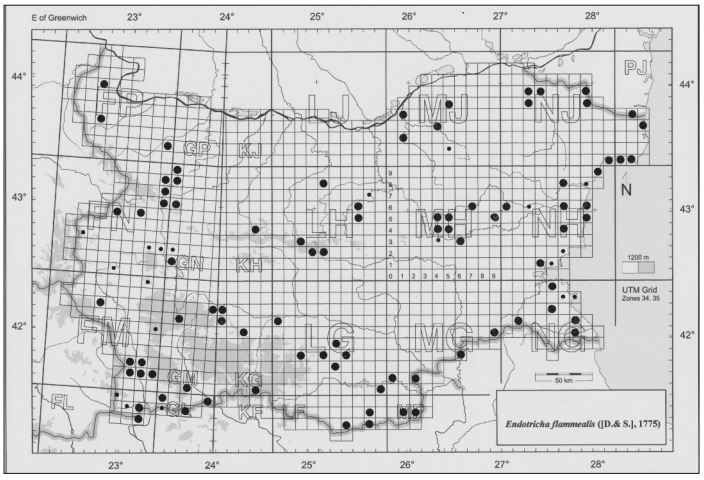
Distribution of *Hypsotropa limbella* Zeller, 1848



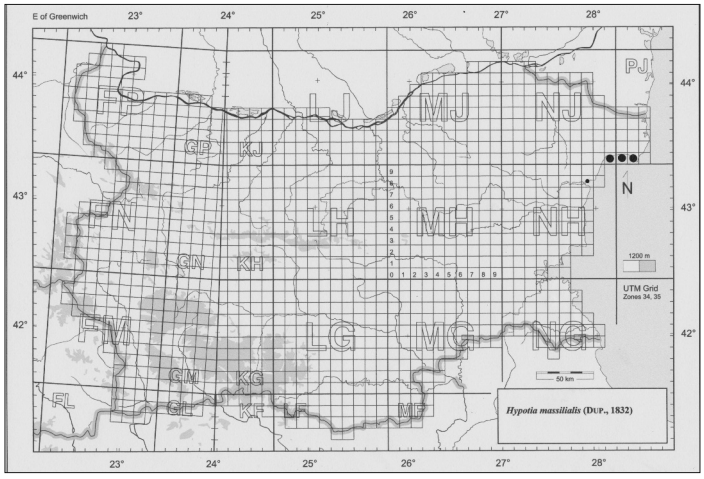
Distribution of *Ematheudes punctella* (Treitschke, 1833)



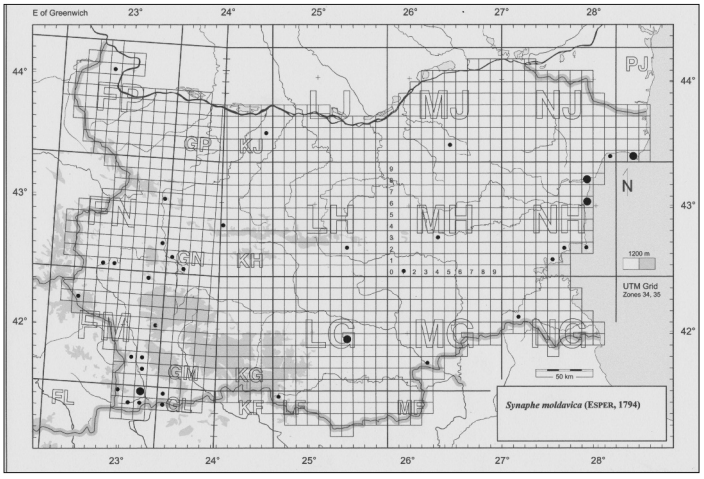
Distribution of *Polyocha cremoricosta* Ragonot, 1895



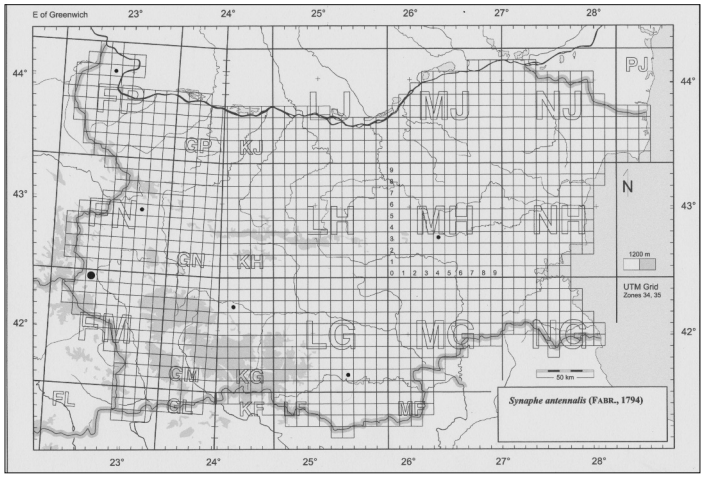
Distribution of *Endotricha flammealis* ([Denis & Schiffermüller], 1775)



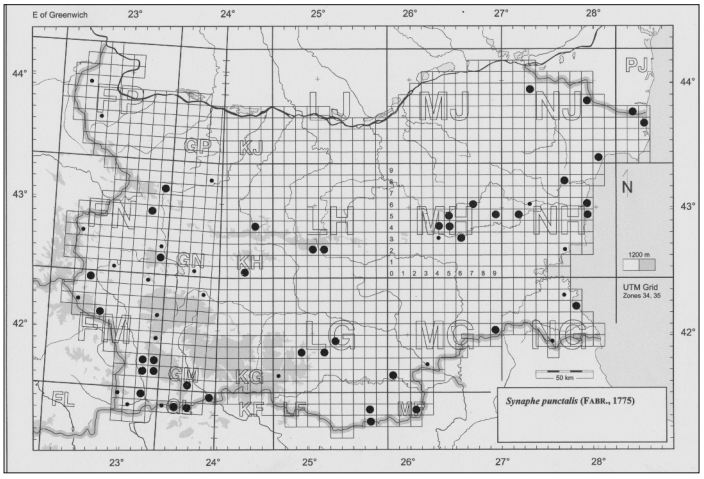
Distribution of *Hypotia massilialis* (Duponchel, 1832)



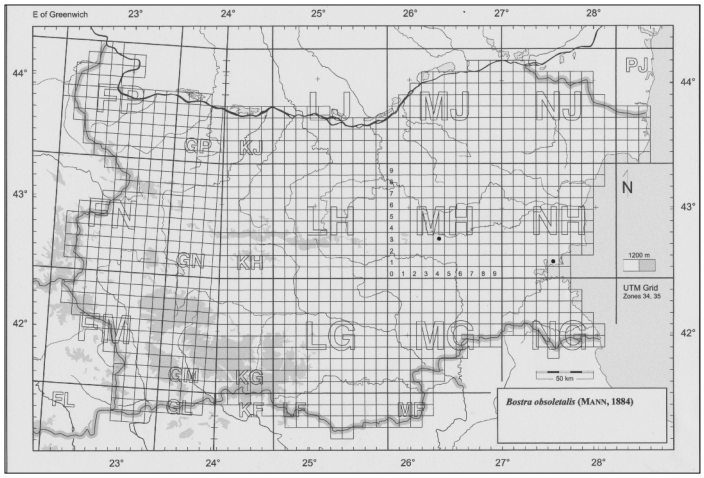
Distribution of *Synaphe moldavica* (Esper, 1794)



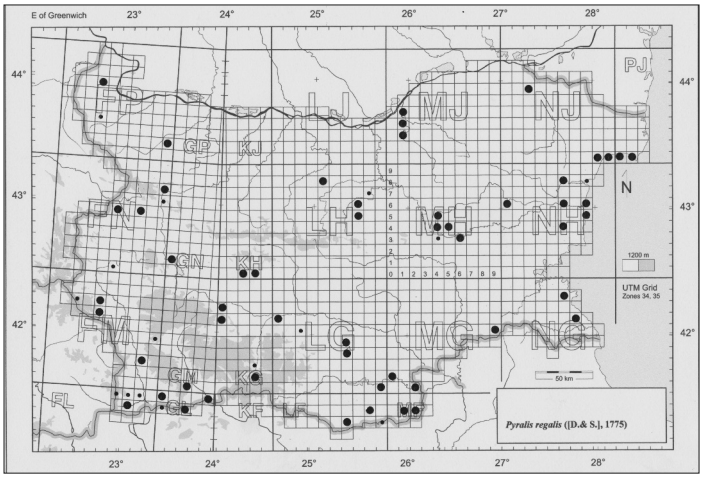
Distribution of *Synaphe antennalis* (Fabricius, 1794)



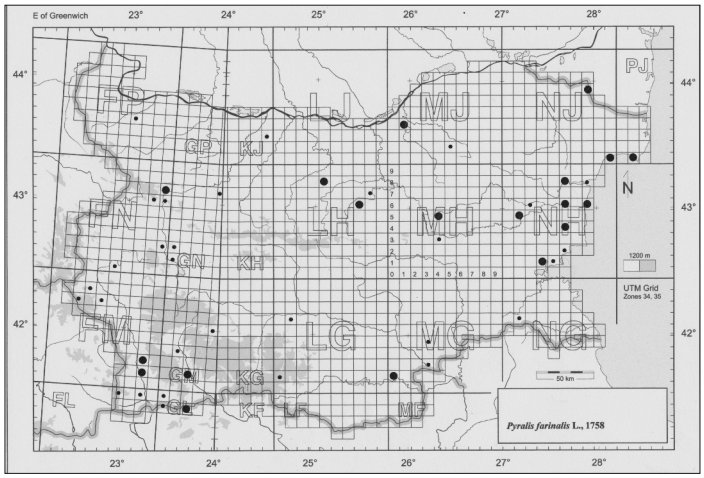
Distribution of *Synaphe punctalis* (Fabricius, 1775)



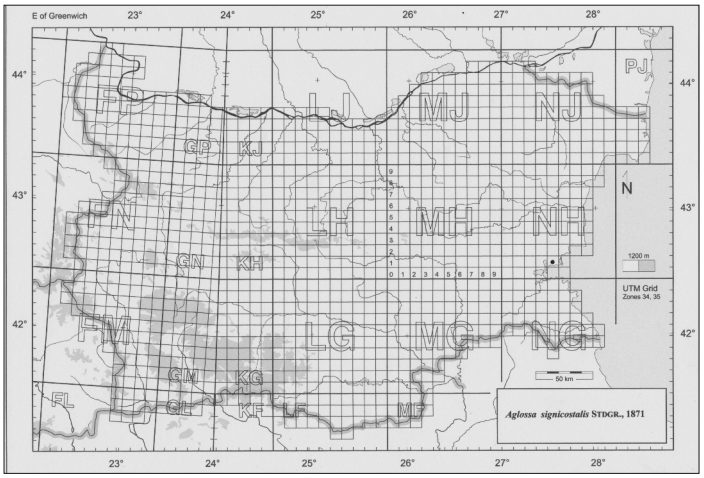
Distribution of *Bostra obsoletalis* (Mann, 1884)



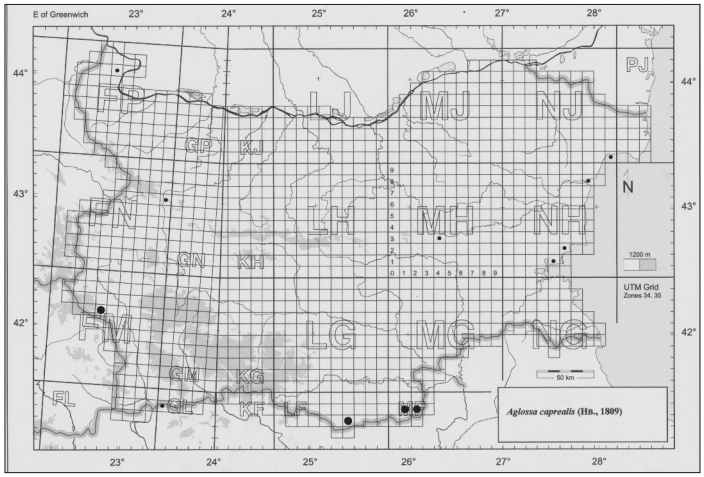
Distribution of *Pyralis regalis* ([Denis & Schiffermüller], 1775)



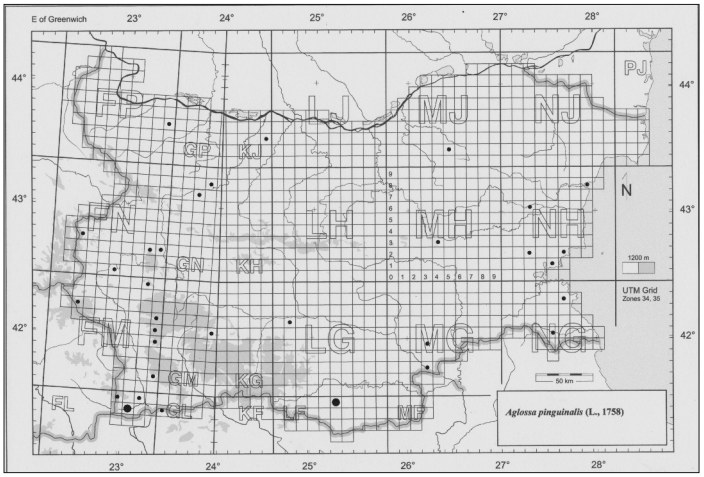
Distribution of *Pyralis farinalis* Linnaeus, 1758



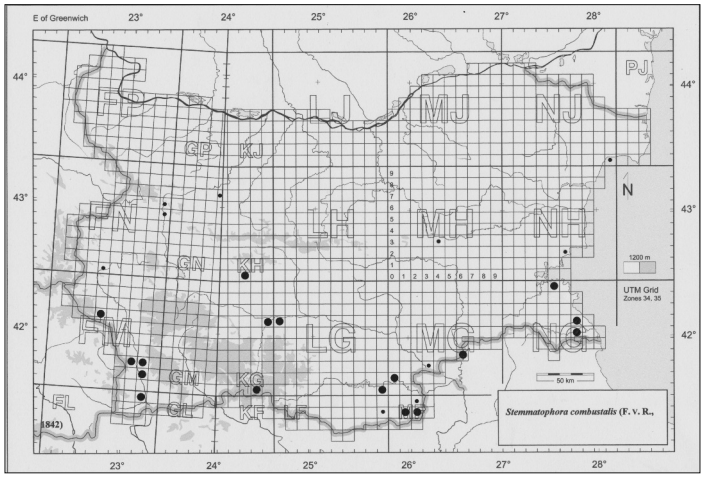
Distribution of *Aglossa signicostalis* Staudinger, 1871



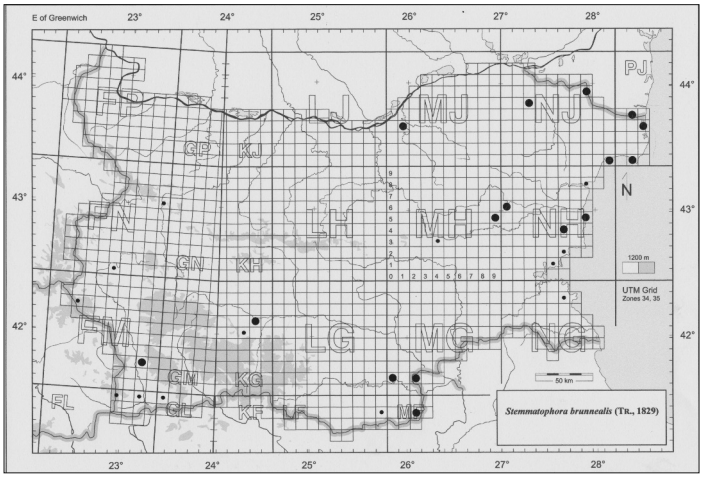
Distribution of *Aglossa caprealis* (Hübner, 1809)



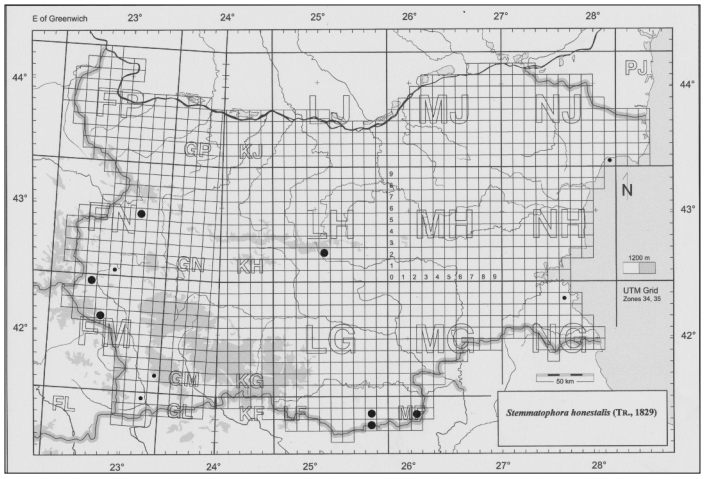
Distribution of *Aglossa pinguinalis* (Linnaeus, 1758)



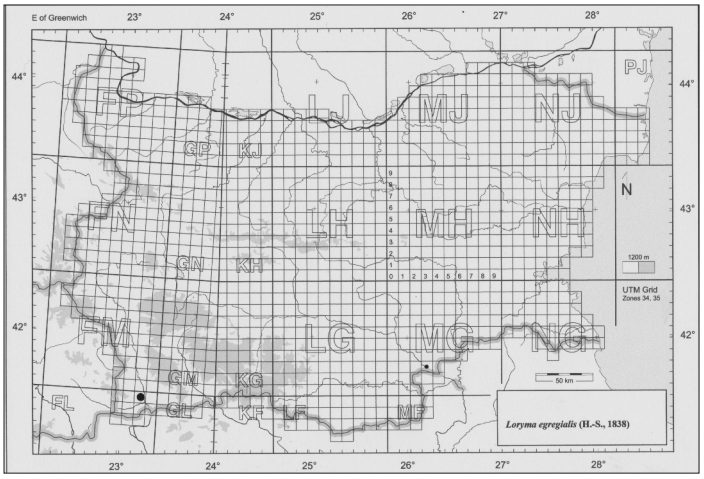
Distribution of *Stemmatophora combustalis* (Fischer von Röslerstamm, 1842)



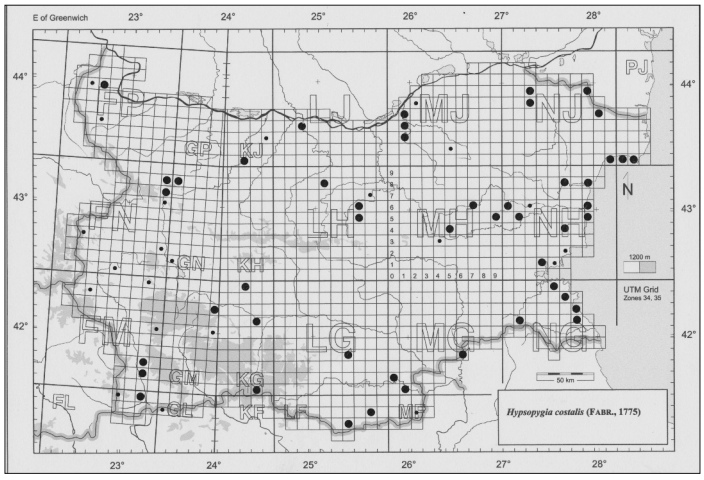
Distribution of *Stemmatophora brunnealis* (Treitschke, 1829)



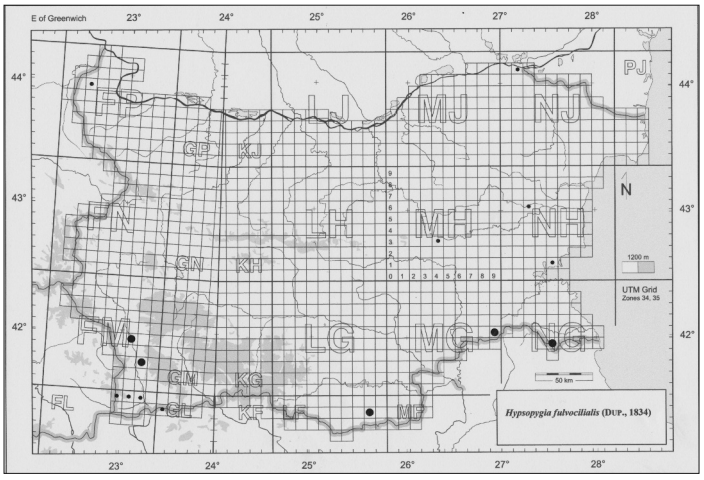
Distribution of *Stemmatophora honestalis* (TREITSCHKE, 1829)



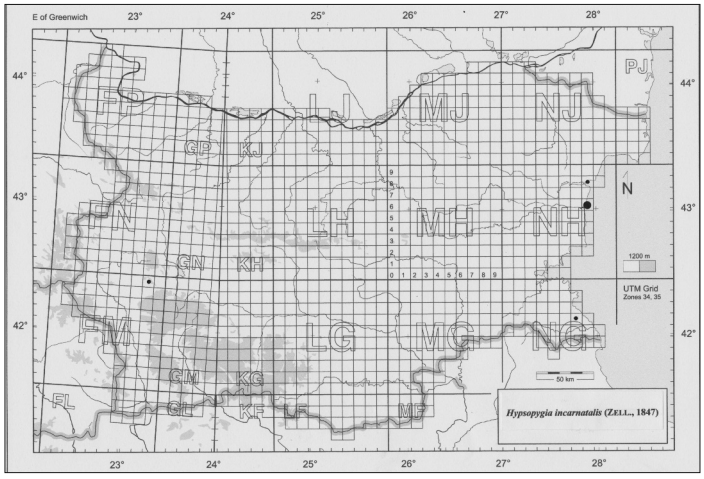
Distribution of *Loryma egregialis* (HERRICH-SCHÄFFER, 1838)



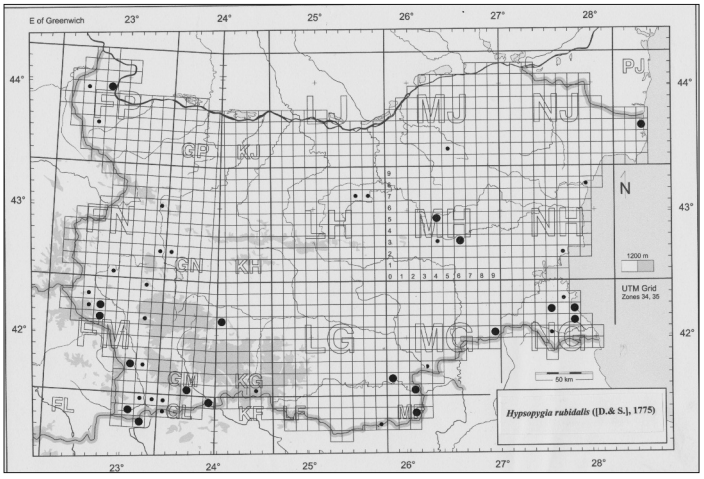
Distribution of *Hypsopygia* (*Hypsopygia*) *costalis* (FABRICIUS, 1775)



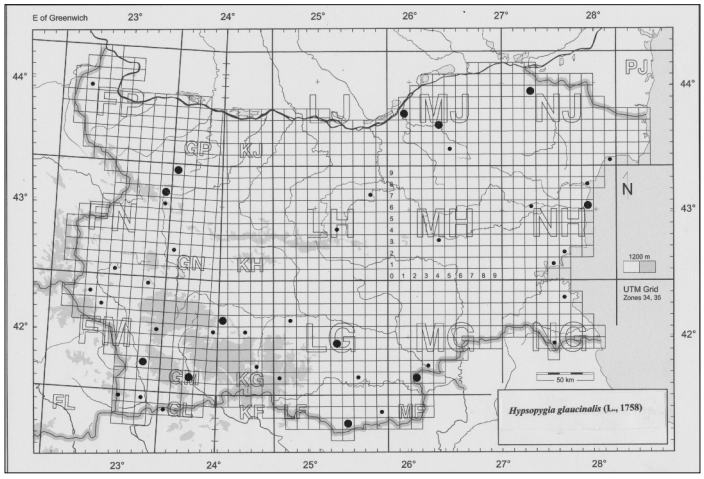
Distribution of *Hypsopygia* (*Ocrasa*) *fulvocilialis* (DUPONCHEL, 1834)



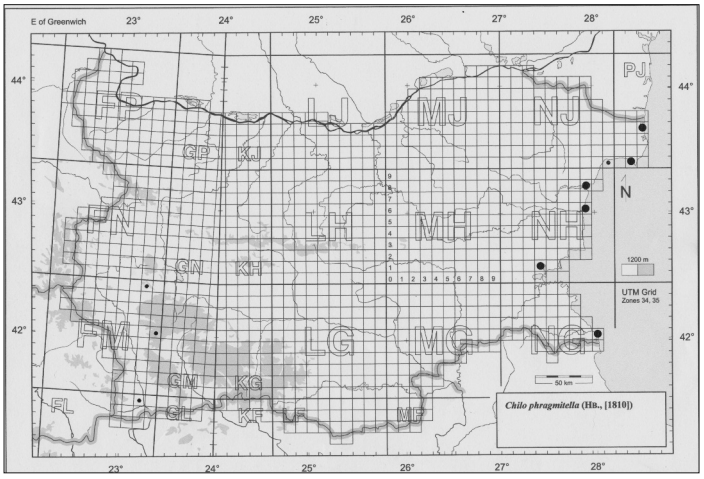
Distribution of *Hypsopygia* (*Ocrasa*) *incarnatalis* (ZELLER, 1847)



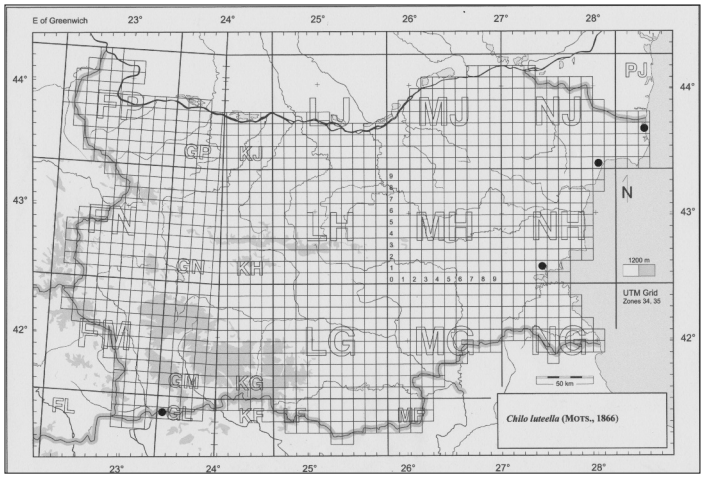
Distribution of *Hypsopygia* (*Ocrasa*) *rubidalis* ([DENIS & SCHIFFERMÜLLER], 1775)



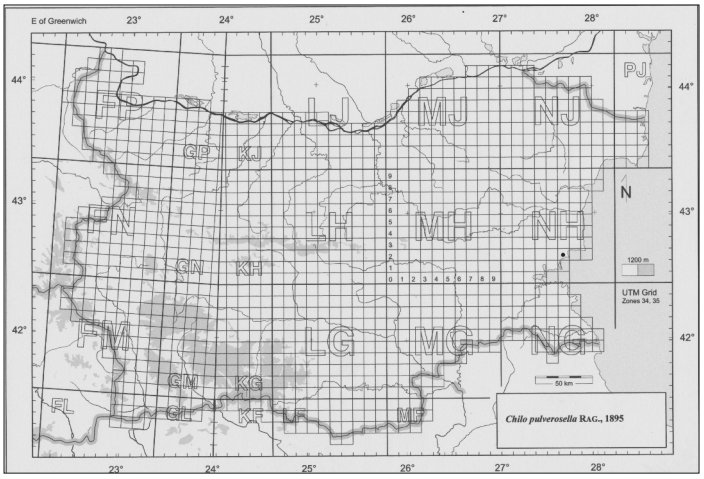
Distribution of *Hypsopygia* (*Ocrasa*) *glaucinalis* (LINNAEUS, 1758)



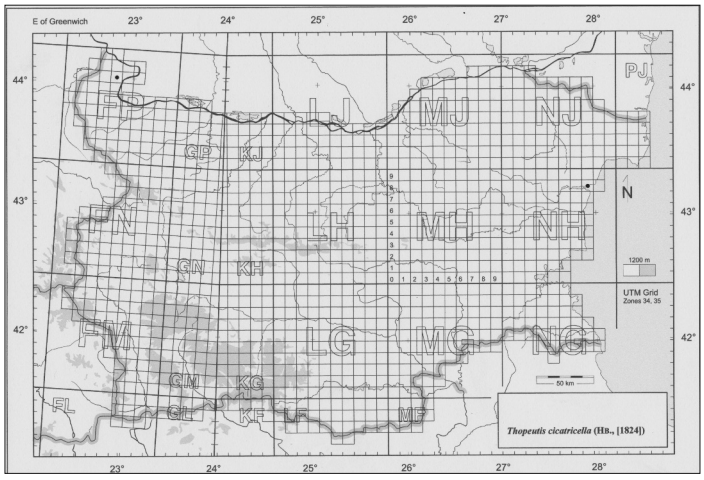
Distribution of *Chilo phragmitella* (HÜBNER, [1810])



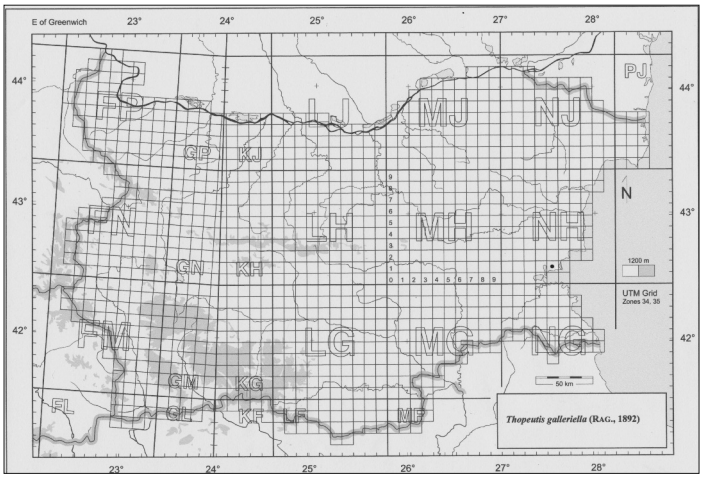
Distribution of *Chilo luteella* (MOTSCHULSKY, 1866)



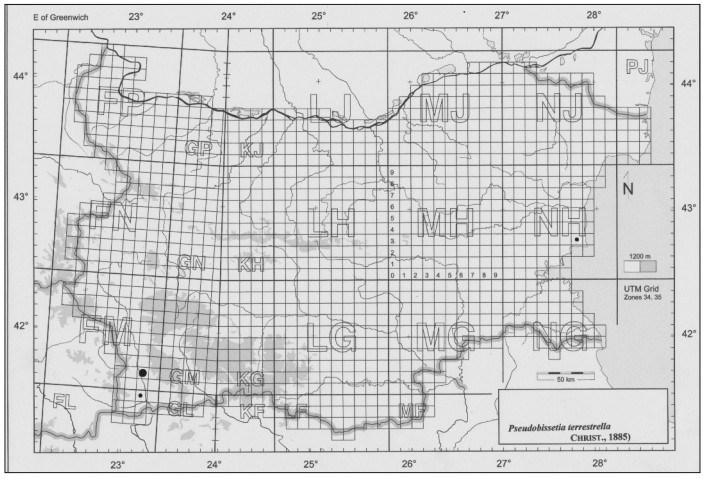
Distribution of *Chilo pulverosella* RAGONOT, 1895



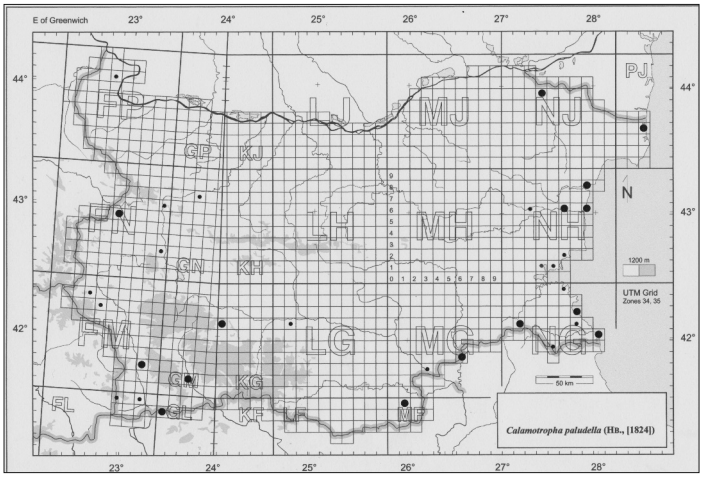
Distribution of *Thopeutis cicatricella* (HÜBNER, [1824])



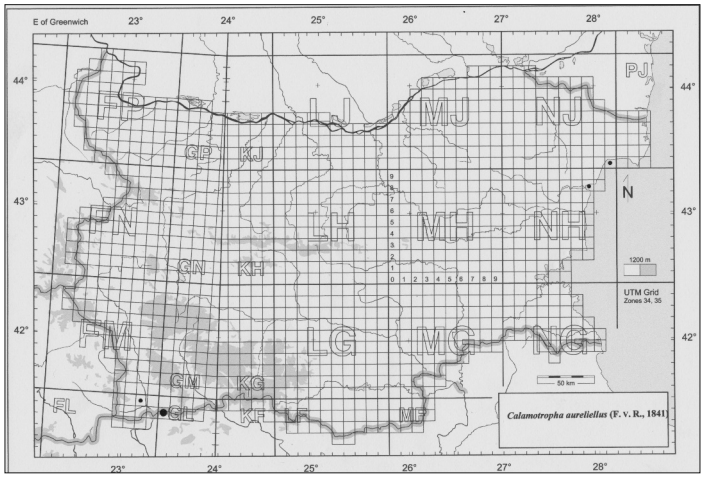
Distribution of *Thopeutis galleriella* (RAGONOT, 1892)



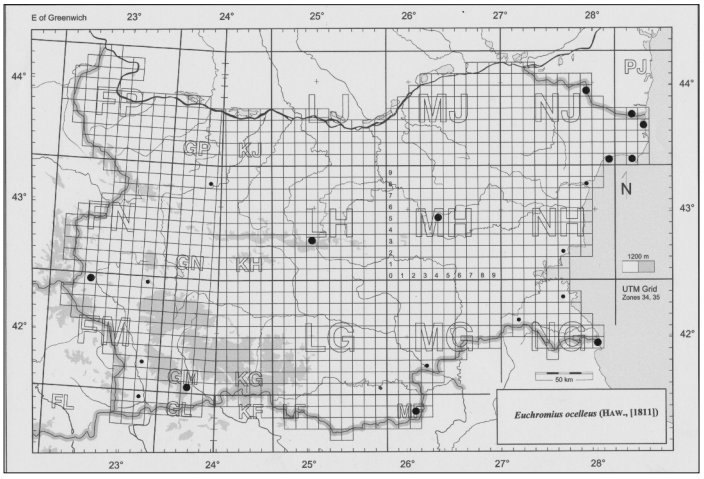
Distribution of *Pseudobissetia terrestrella* CHRISTOPH, 1885)



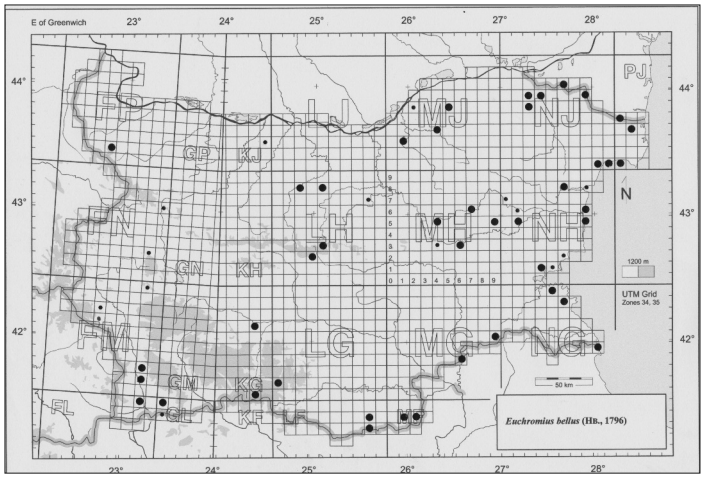
Distribution of *Calamotropha paludella* (HÜBNER, [1824])



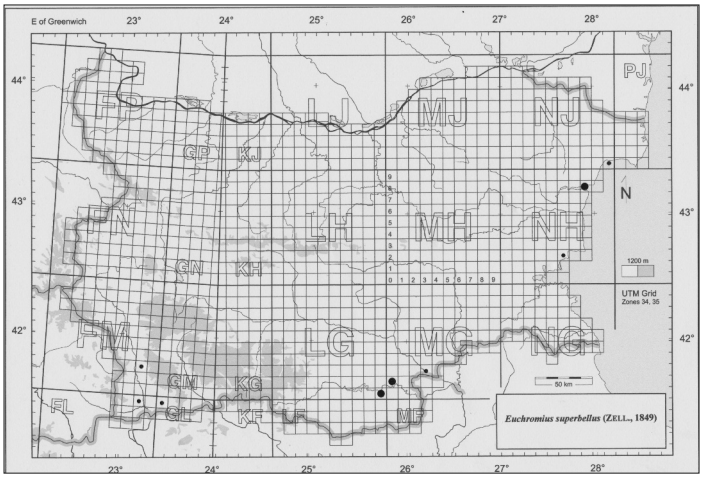
Distribution of *Calamotropha aureliellus* (FISCHER VON RÖSLERSTAMM, 1841)



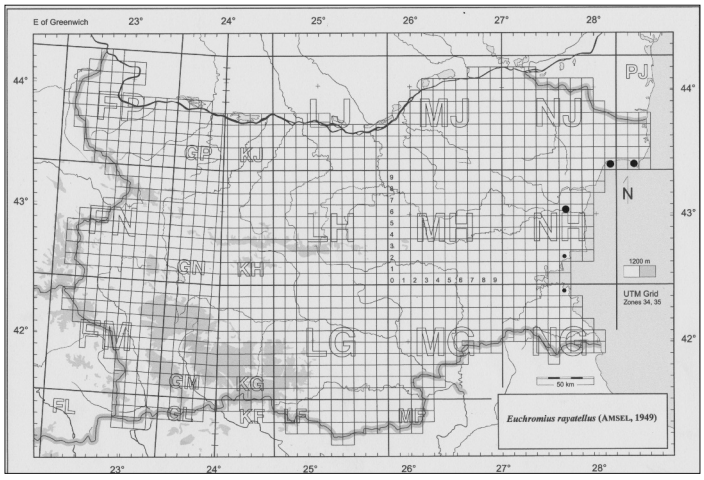
Distribution of *Euchromius ocelleus* (HAWORTH, [1811])



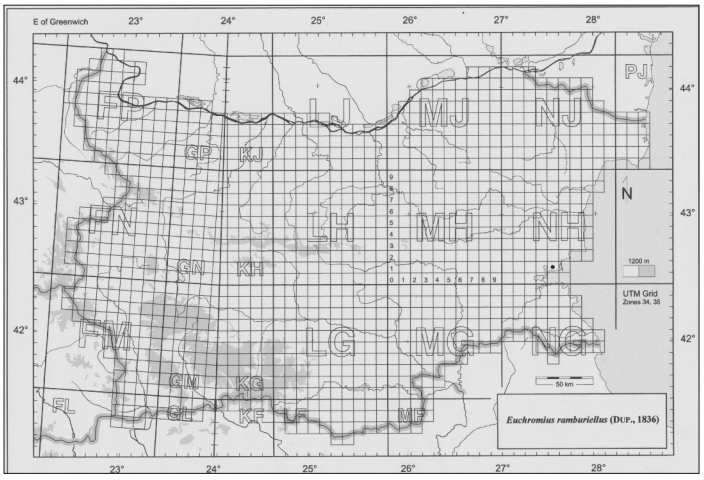
Distribution of *Euchromius bellus* (Hübner, 1796)



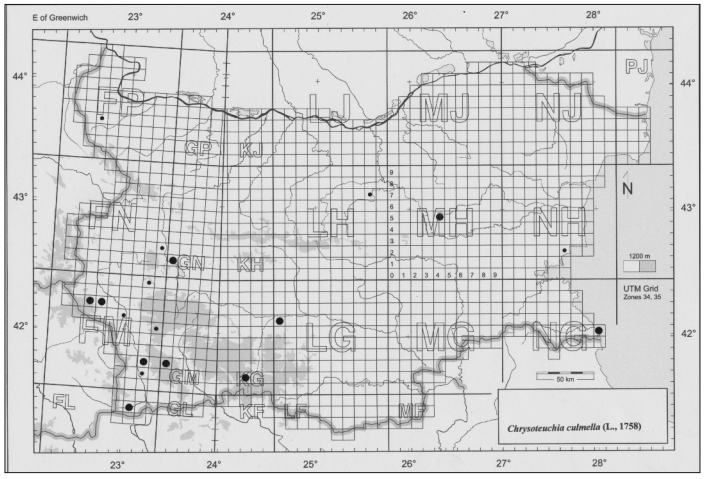
Distribution of *Euchromius superbellus* (Zeller, 1849)



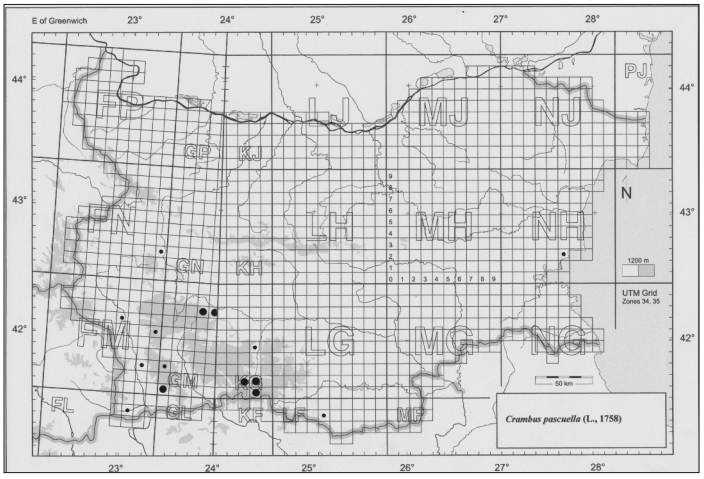
Distribution of *Euchromius rayatellus* (Amsel, 1949)



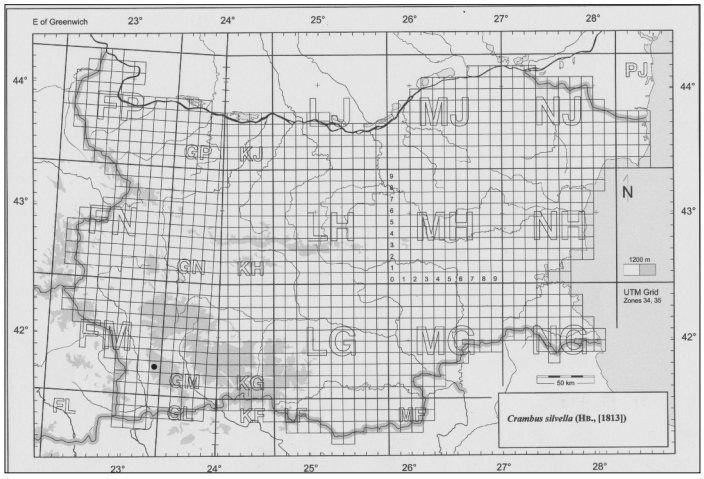
Distribution of *Euchromius ramburiellus* (Duponchel, 1836)



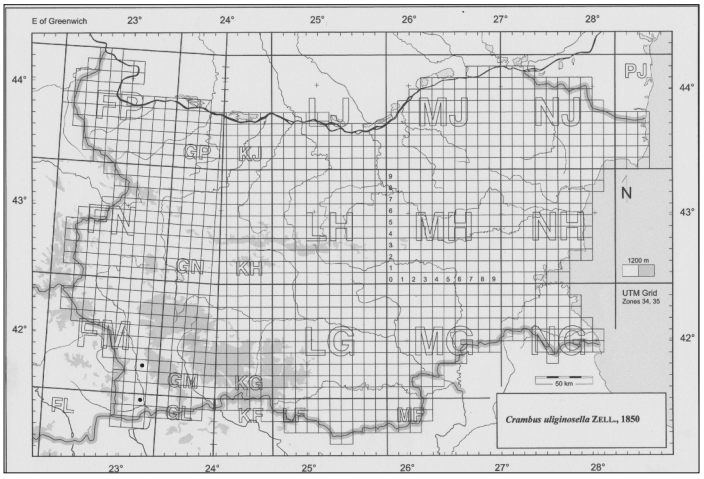
Distribution of *Chrysoteuchia culmella* (Linnaeus, 1758)



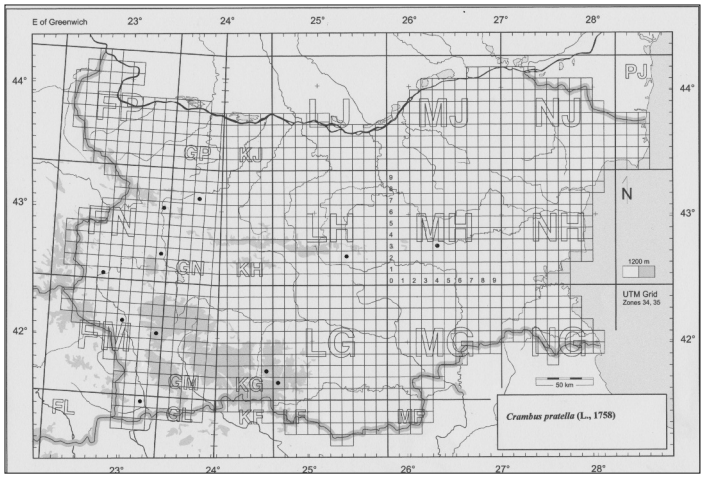
Distribution of *Crambus pascuella* (Linnaeus, 1758)



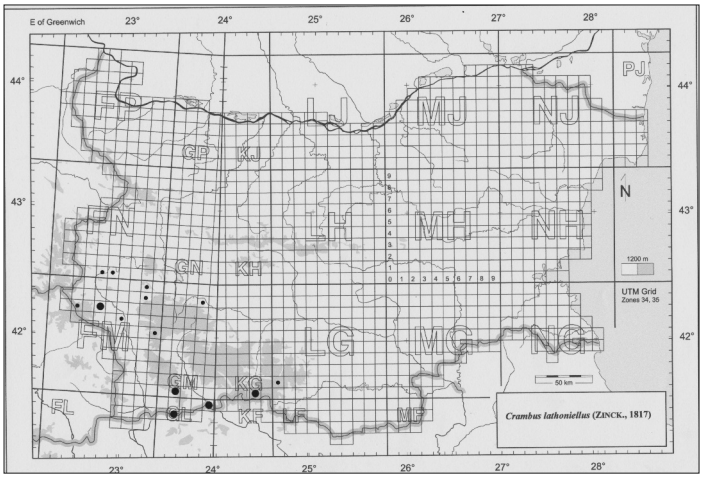
Distribution of *Crambus silvella* (Hübner, [1813])



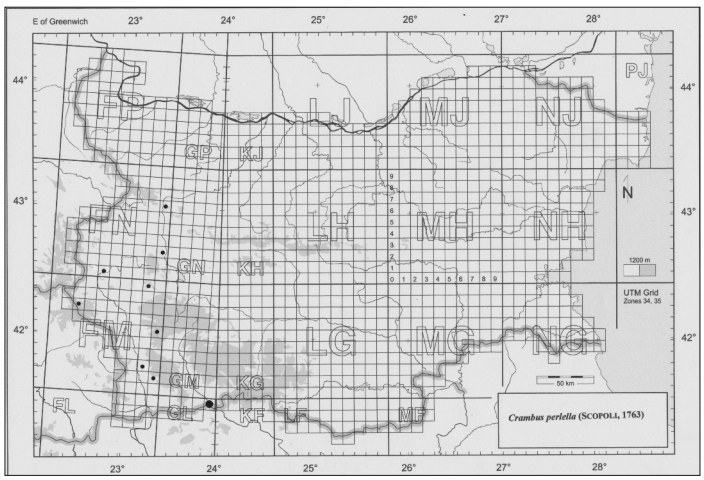
Distribution of *Crambus uliginosella* Zeller, 1850



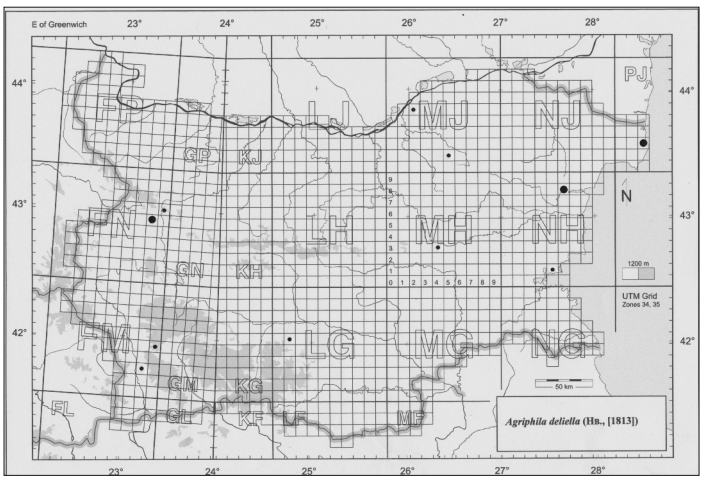
Distribution of *Crambus pratella* (LINNAEUS, 1758)



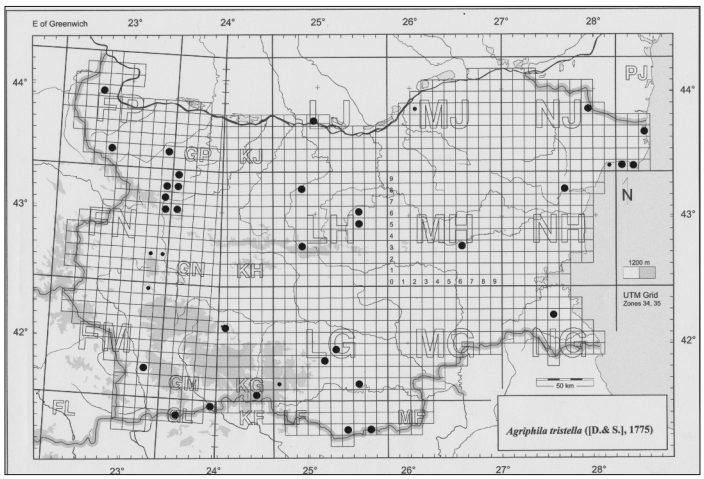
Distribution of *Crambus lathoniellus* (ZINCKEN, 1817)



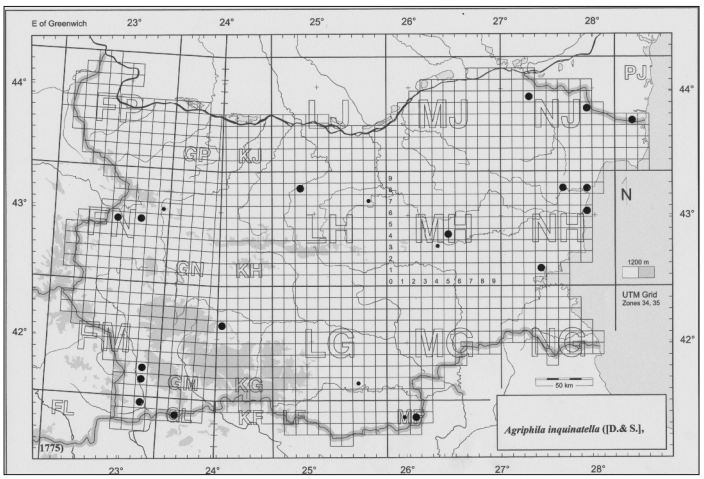
Distribution of *Crambus perlella* (SCOPOLI, 1763)



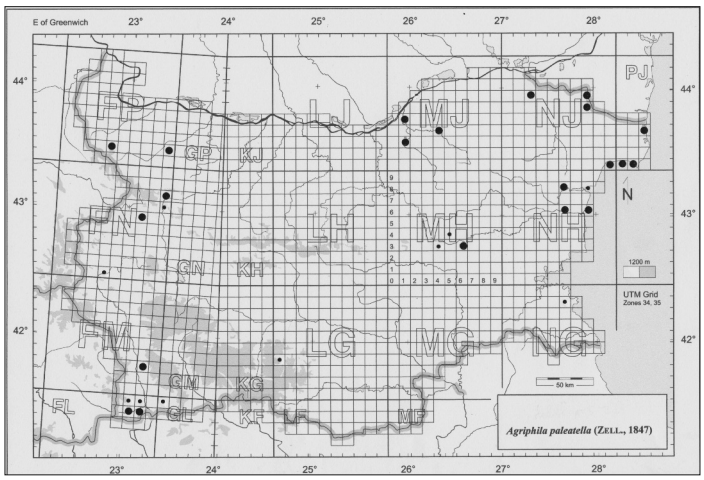
Distribution of *Agriphila deliella* (HÜBNER, [1813])



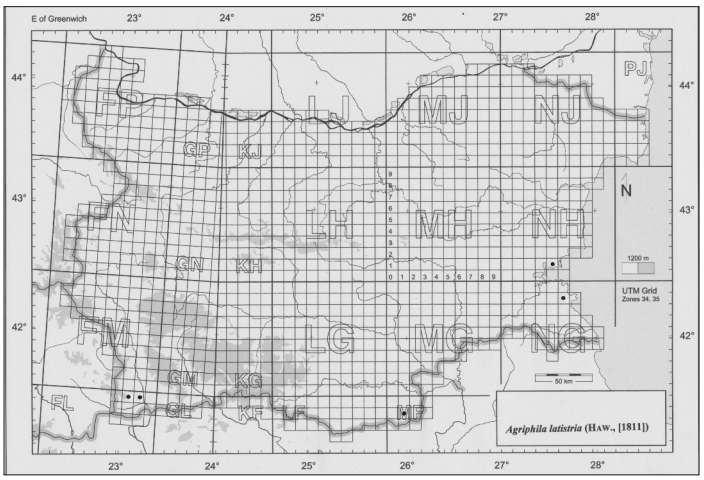
Distribution of *Agriphila tristella* ([DENIS & SCHIFFERMÜLLER], 1775)



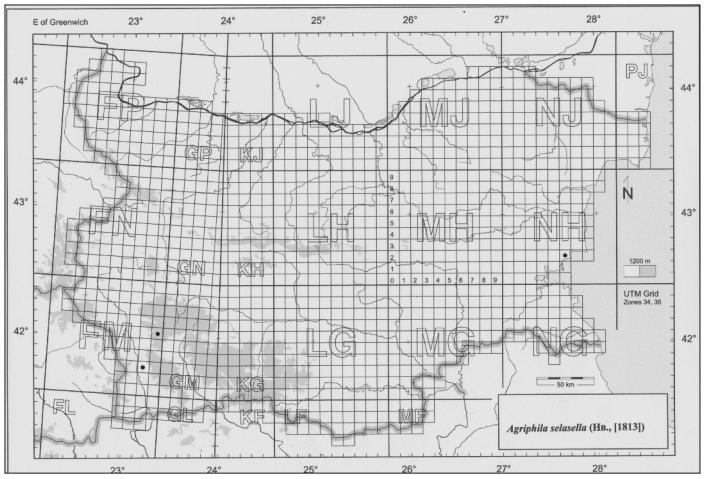
Distribution of *Agriphila inquinatella* ([DENIS & SCHIFFERMÜLLER], 1775)



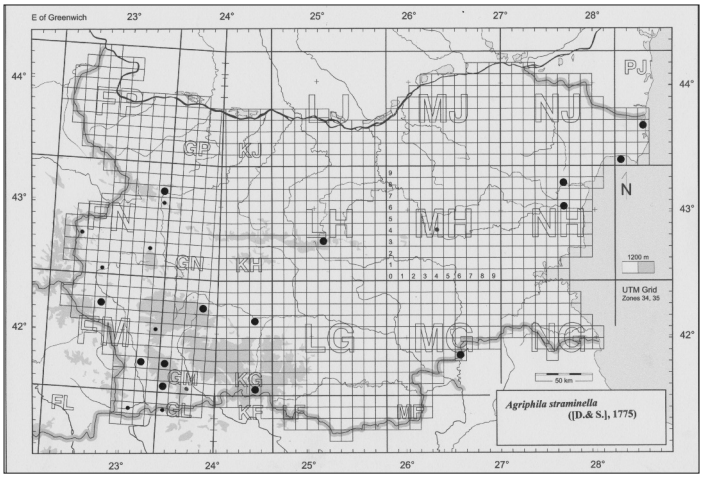
Distribution of *Agriphila paleatella* (ZELLER, 1847)



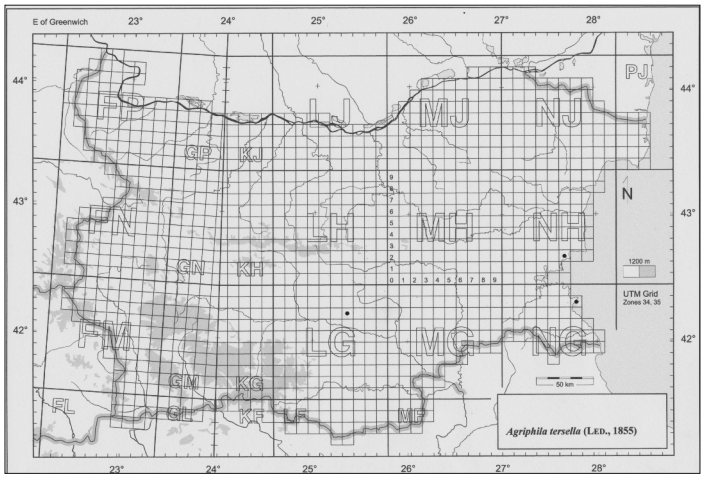
Distribution of *Agriphila latistria* (HAWORTH, [1811])



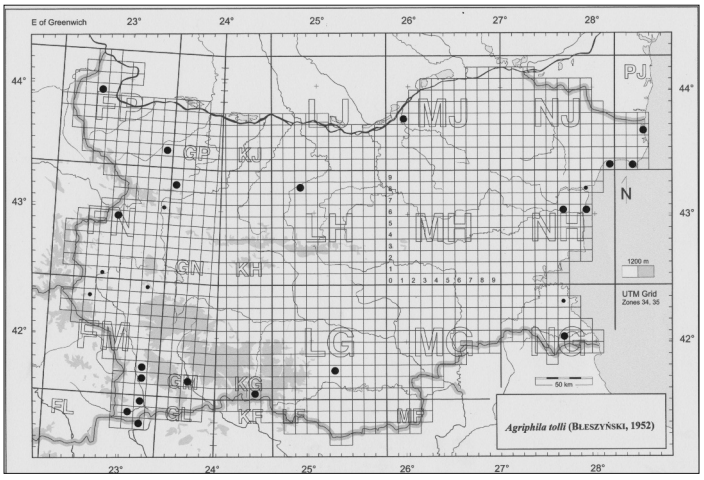
Distribution of *Agriphila selasella* (HÜBNER, [1813])



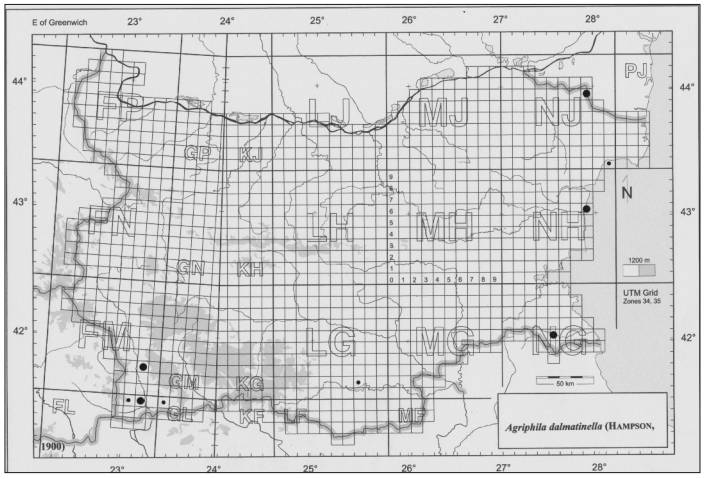
Distribution of *Agriphila straminella* ([DENIS & SCHIFFERMÜLLER], 1775)



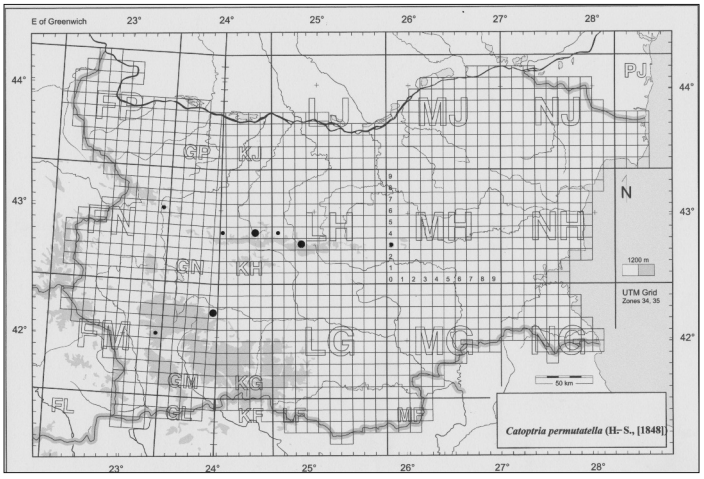
Distribution of *Agriphila tersella* (LEDERER, 1855)



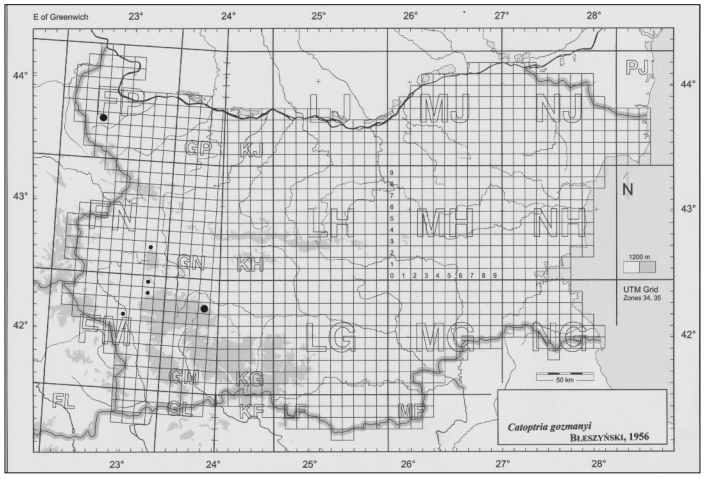
Distribution of *Agriphila tolli* (BŁESZYŃSKI, 1952)



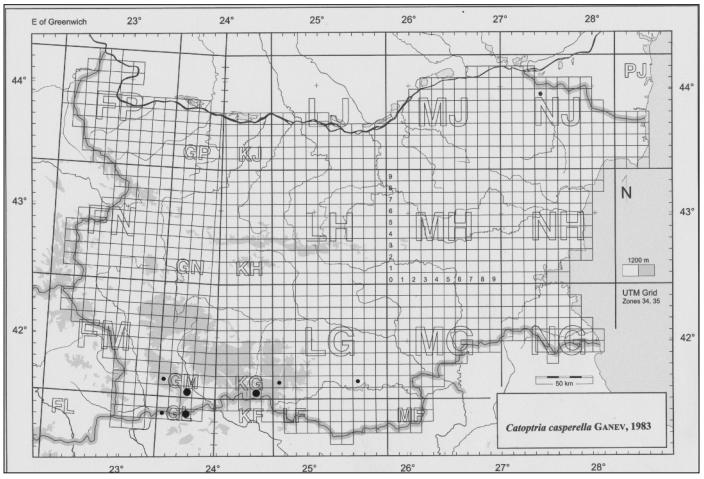
Distribution of *Agriphila dalmatinella* (HAMPSON, 1900)



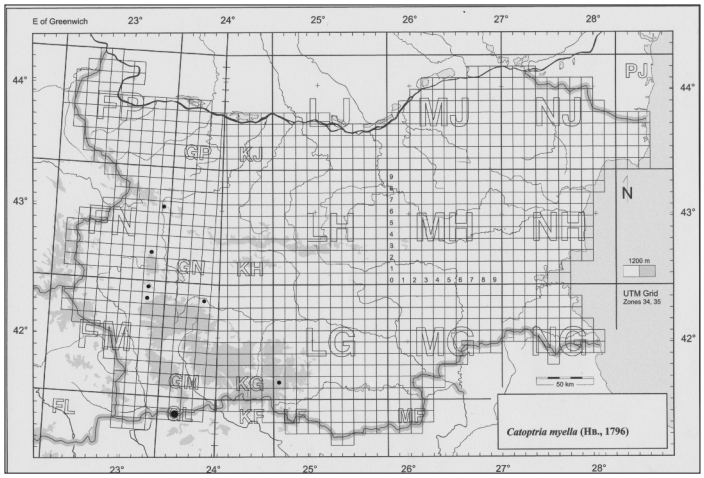
Distribution of *Catoptria permutatella* (HERRICH-SCHÄFFER, [1848])



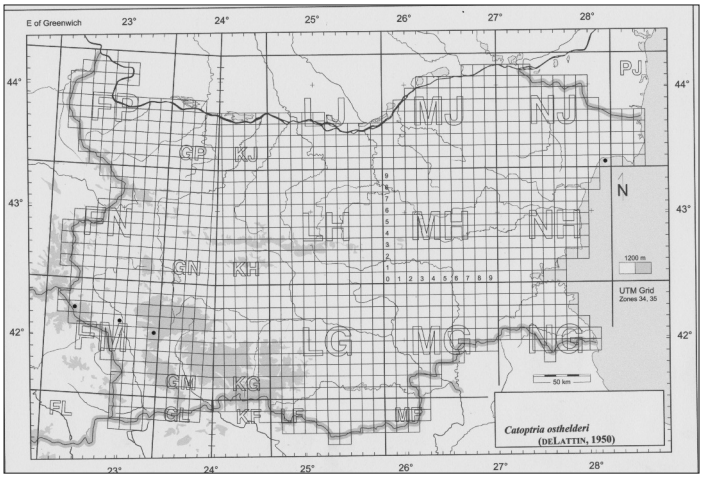
Distribution of *Catoptria gozmanyi* BŁESZYŃSKI, 1956 (*nec* SLIVOV, 1981)



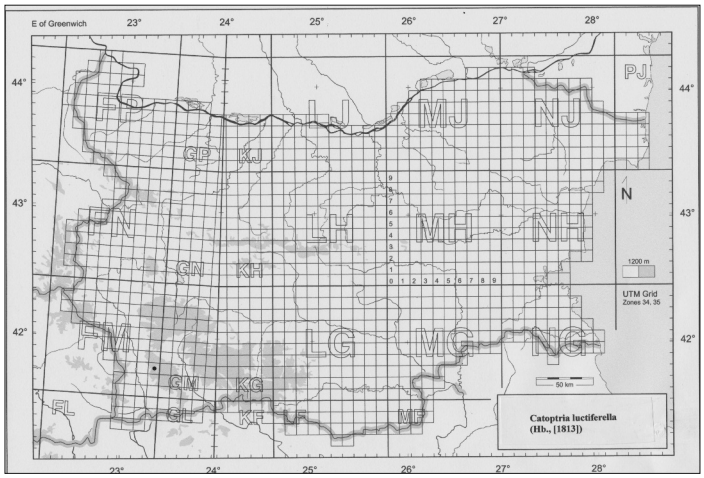
Distribution of *Catoptria casperella* GANEV, 1983



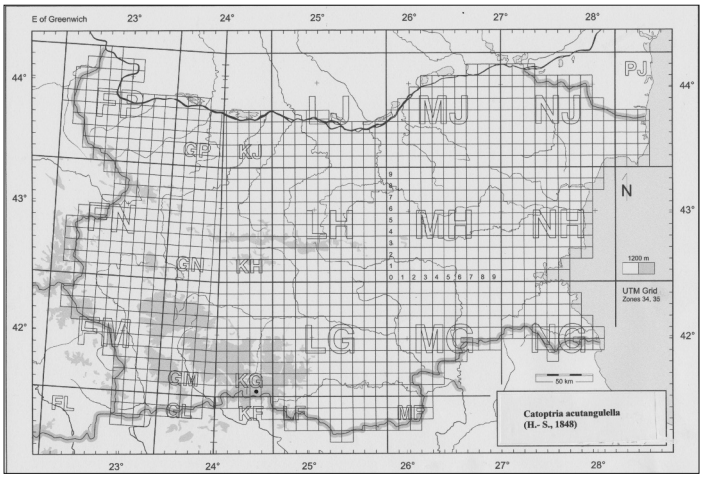
Distribution of *Catoptria myella* (HÜBNER, 1796)



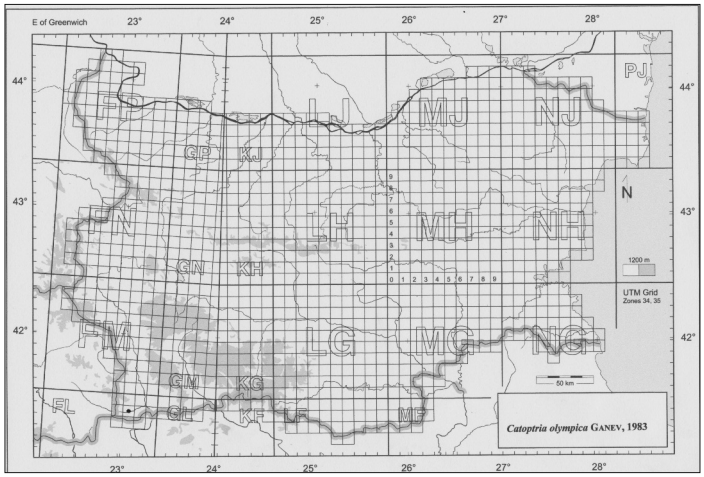
Distribution of *Catoptria osthelderi* (DELATTIN, 1950)



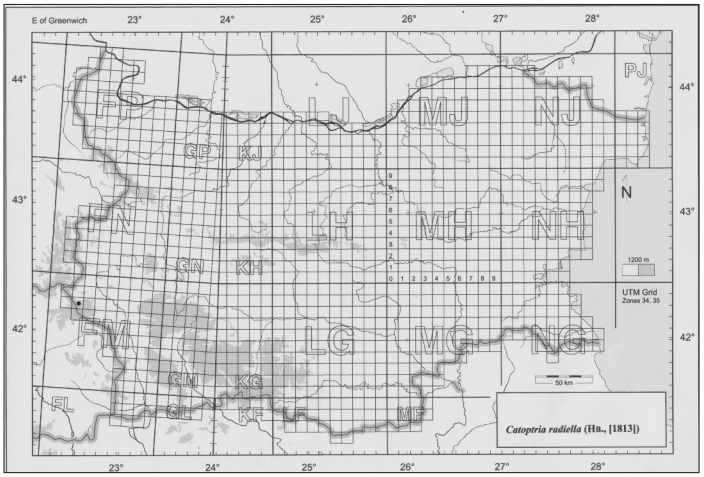
Distribution of *Catoptria luctiferella* (HÜBNER, [1813])



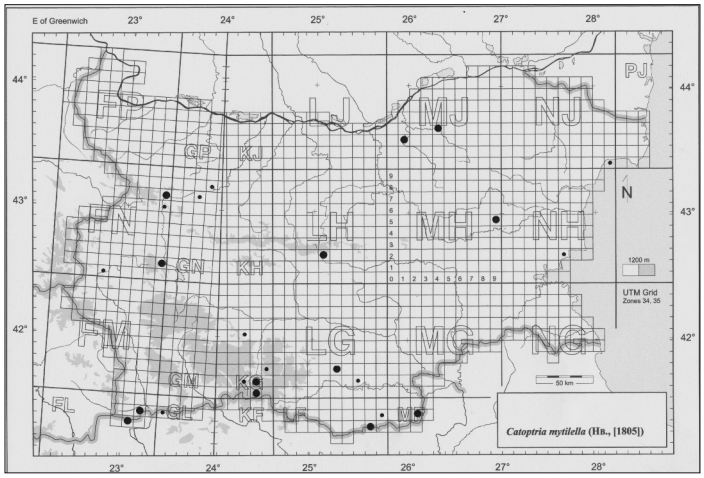
Distribution of *Catoptria acutangulella* (HERRICH-SCHÄFFER, 1848)



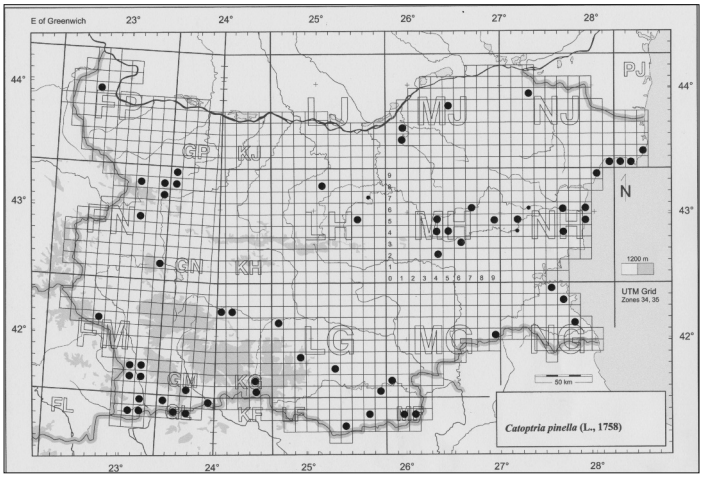
Distribution of *Catoptria olympica* GANEV, 1983



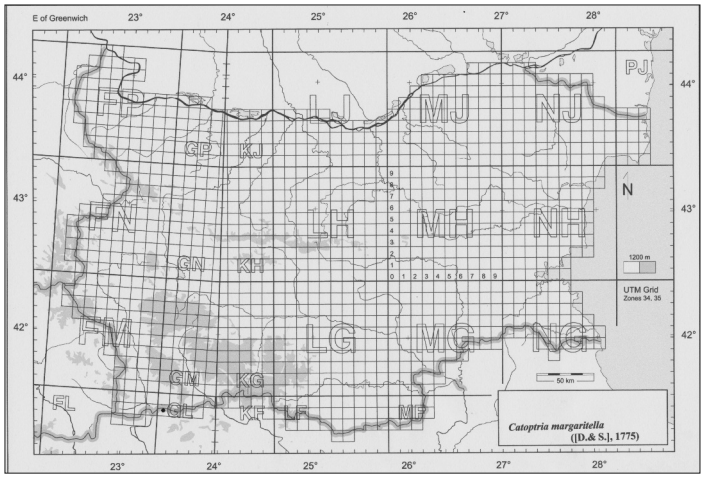
Distribution of *Catoptria radiella* (HÜBNER, [1813])



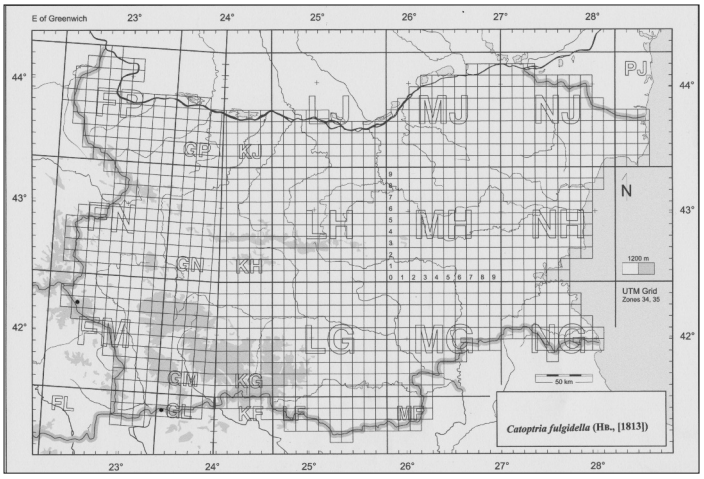
Distribution of *Catoptria mytilella* (HÜBNER, [1805])



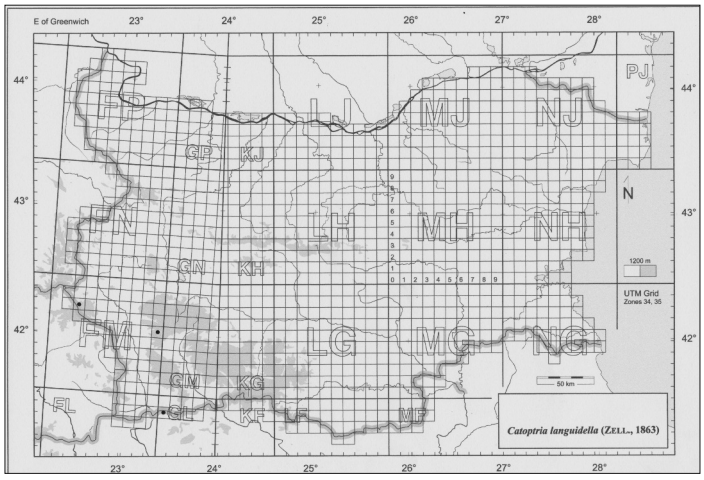
Distribution of *Catoptria pinella* (LINNAEUS, 1758)



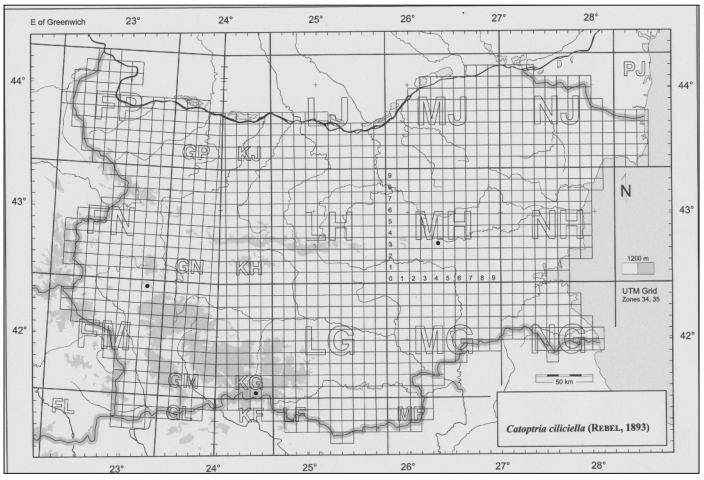
Distribution of *Catoptria margaritella* ([Denis & Schiffermüller], 1775)



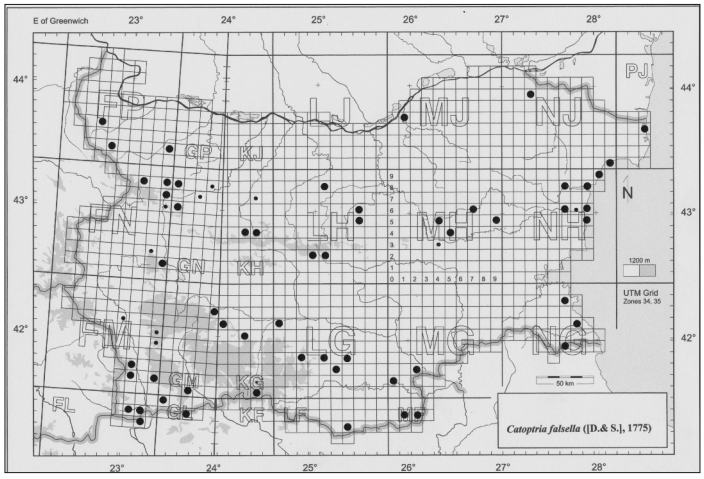
Distribution of *Catoptria fulgidella* (Hübner, [1813])



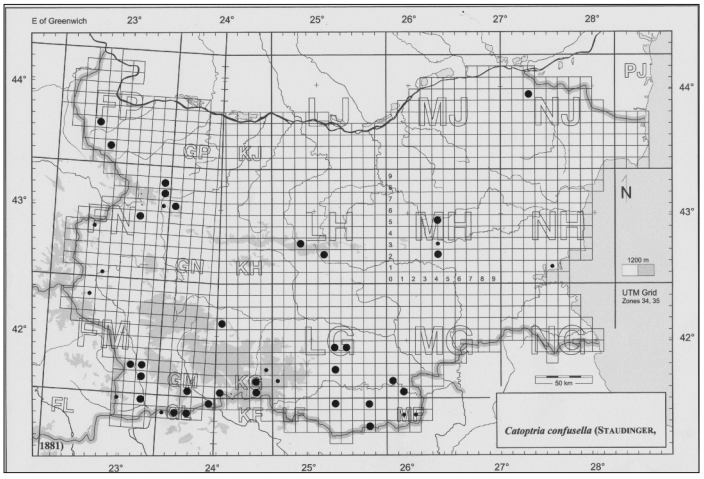
Distribution of *Catoptria languidella* (Zeller, 1863)



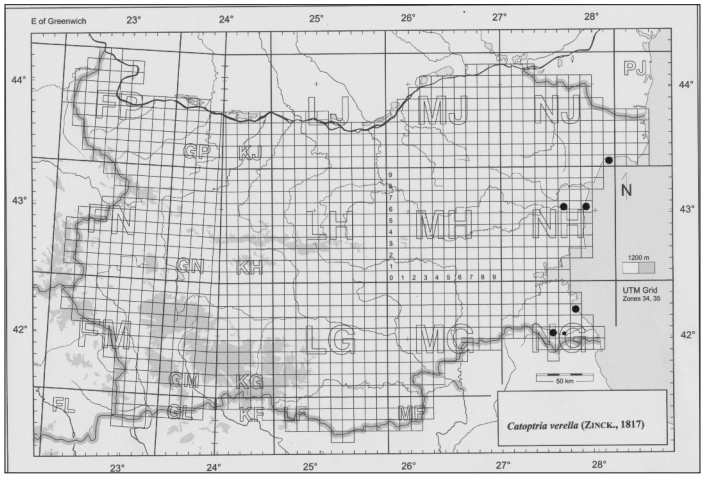
Distribution of *Catoptria ciliciella* (Rebel, 1893)



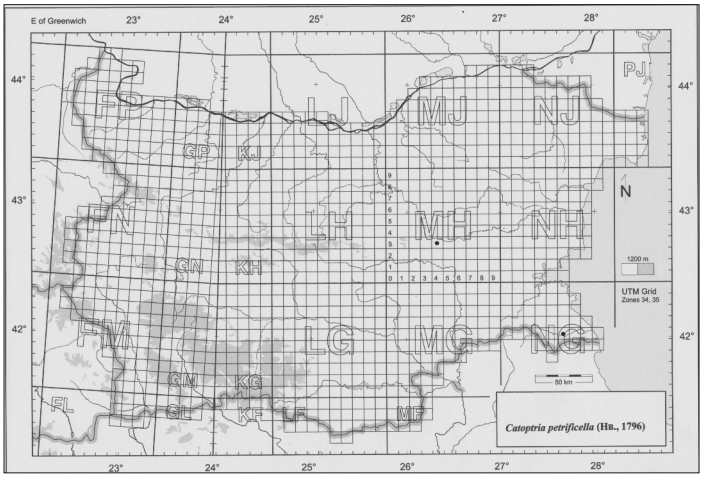
Distribution of *Catoptria falsella* ([Denis & Schiffermüller], 1775)



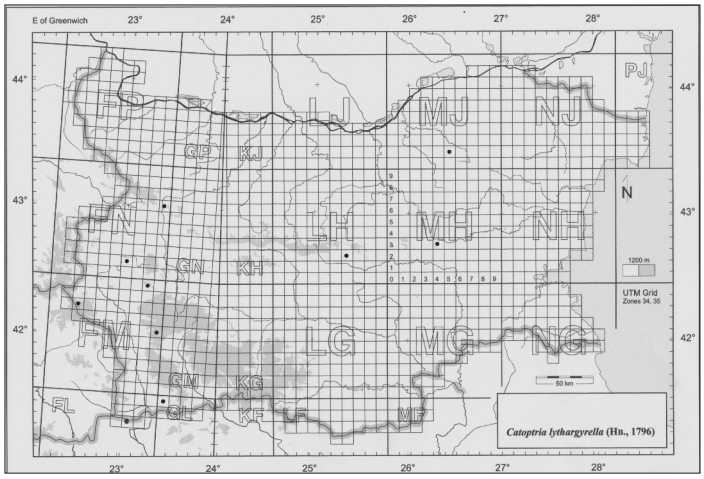
Distribution of *Catoptria confusella* (Staudinger, 1881)



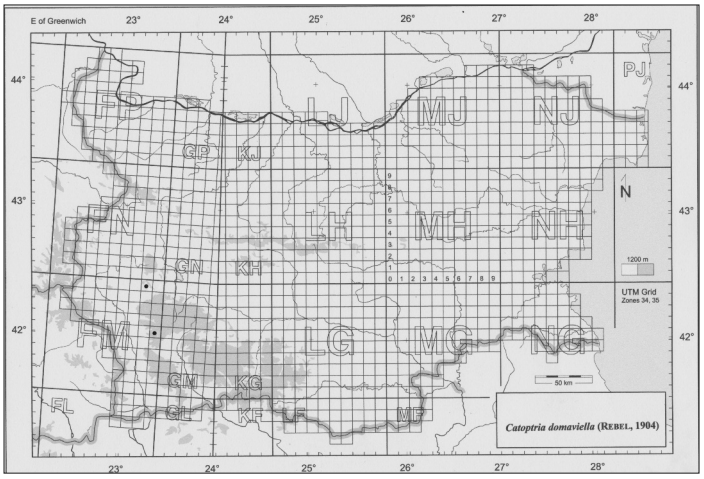
Distribution of *Catoptria verella* (Zincken, 1817)



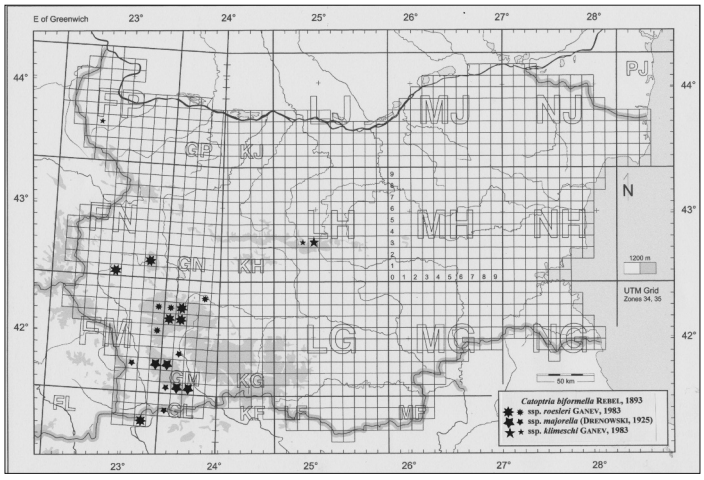
Distribution of *Catoptria petrificella* (hübner, 1796)



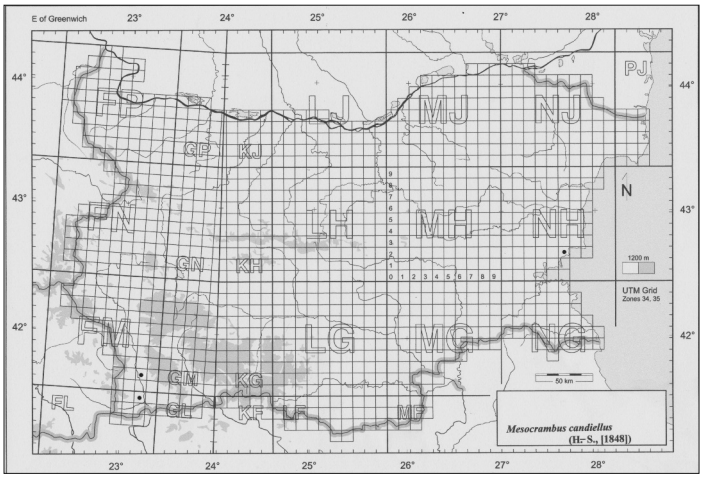
Distribution of *Catoptria lythargyrella* (HÜBNER, 1796)



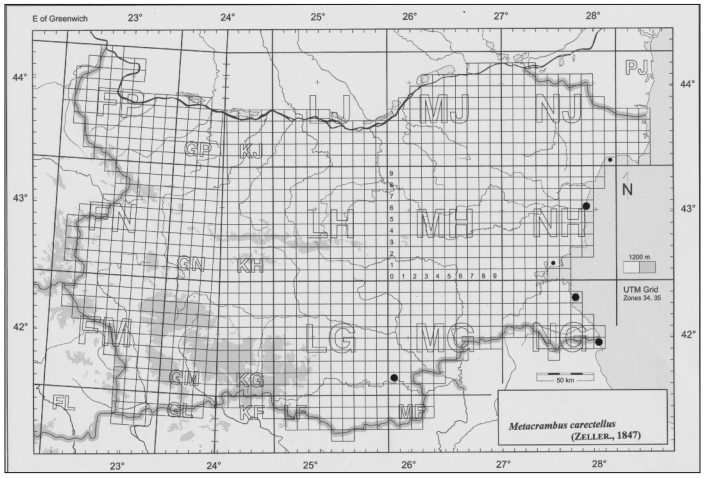
Distribution of *Catoptria domaviella* (REBEL, 1904)



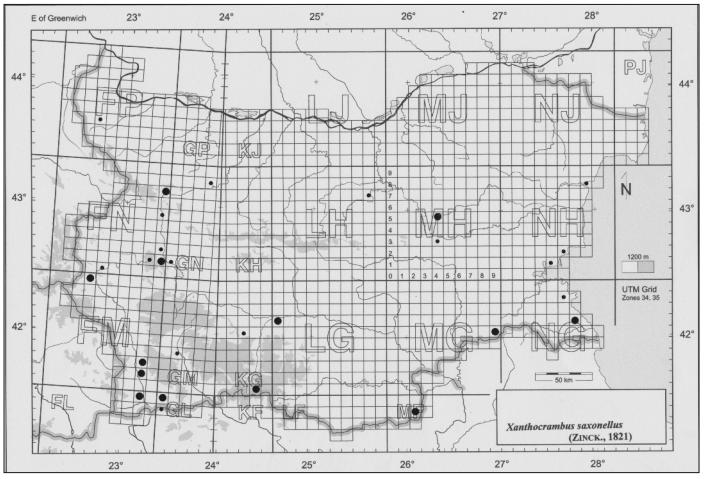
Distribution of *Catoptria biformella* REBEL, 1893



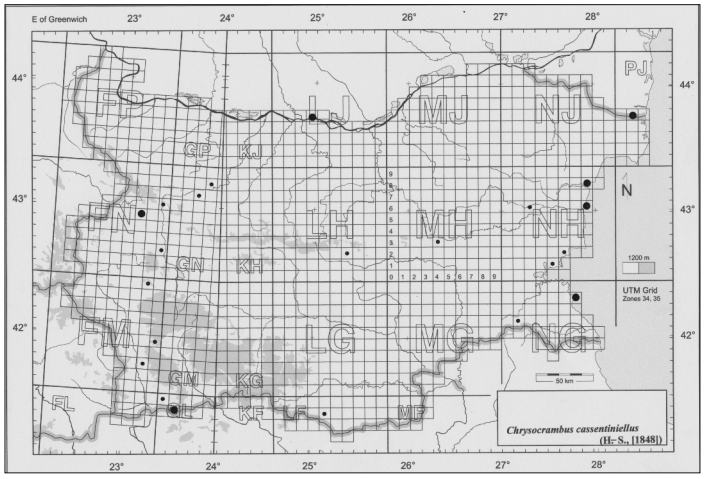
Distribution of *Mesocrambus candiellus* (HERRICH-SCHÄFFER, [1848])



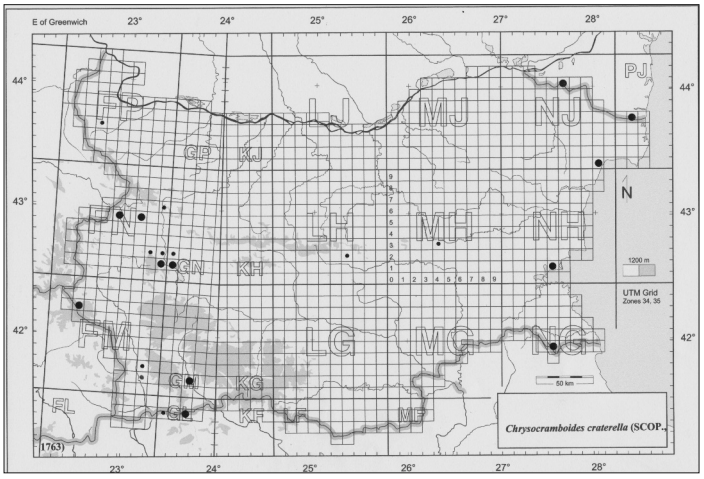
Distribution of *Metacrambus carectellus* (ZELLER, 1847) bon. comb.



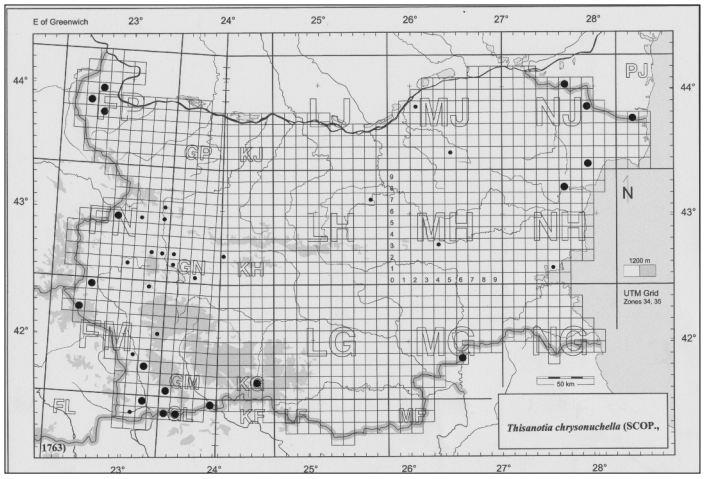
Distribution of *Xanthocrambus saxonellus* (ZINCKEN, 1821)



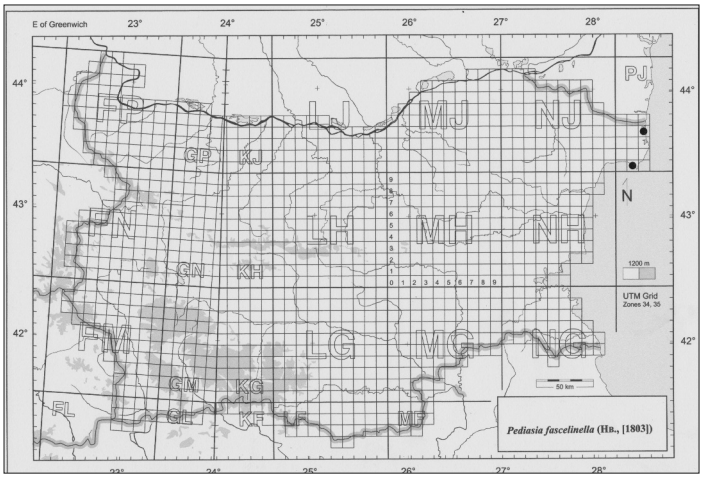
Distribution of *Chrysocrambus cassentiniellus* (HERRICH-SCHÄFFER, [1848])



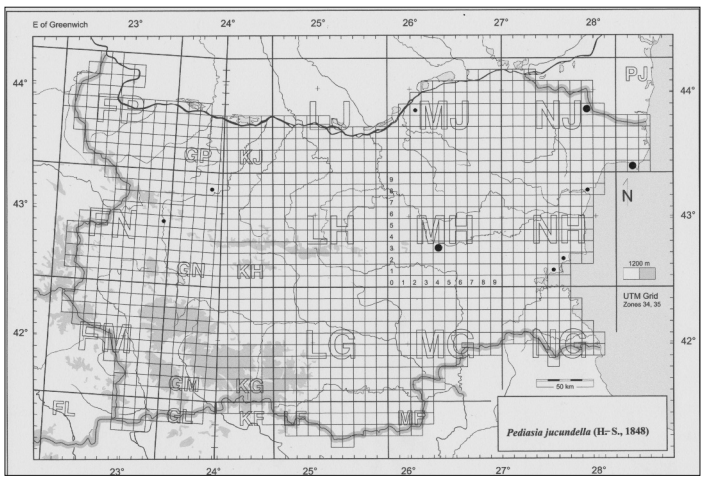
Distribution of *Chrysocramboides craterella* (SCOPOLI, 1763)



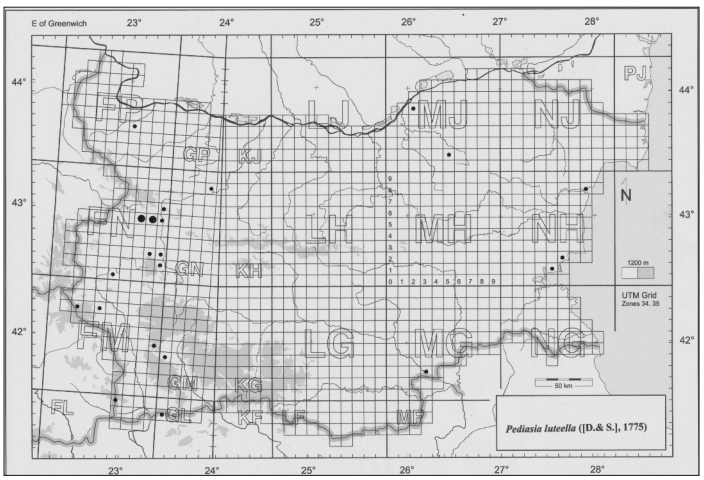
Distribution of *Thisanotia chrysonuchella* (SCOPOLI, 1763)



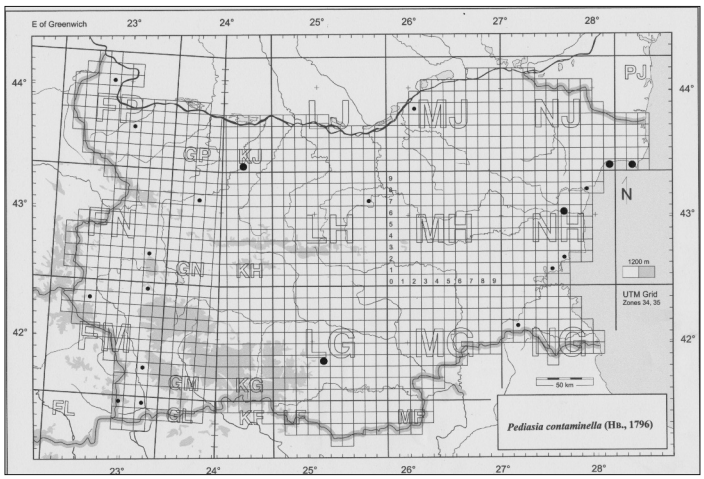
Distribution of *Pediasia fascelinella* (HÜBNER, [1803])



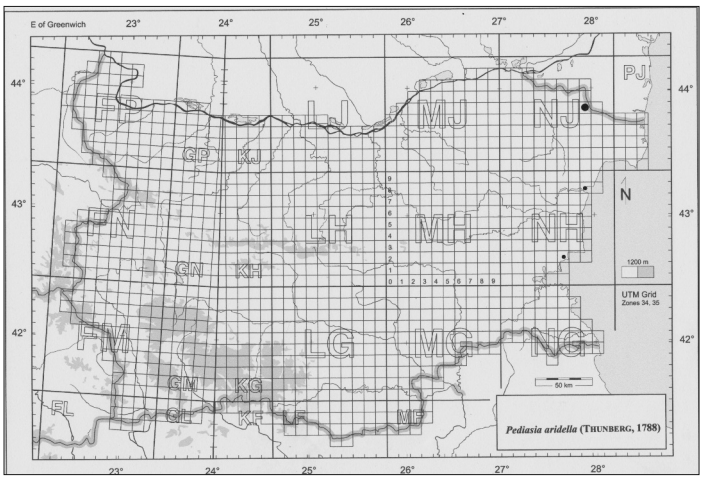
Distribution of *Pediasia jucundella* (HERRICH-SCHÄFFER, 1848)



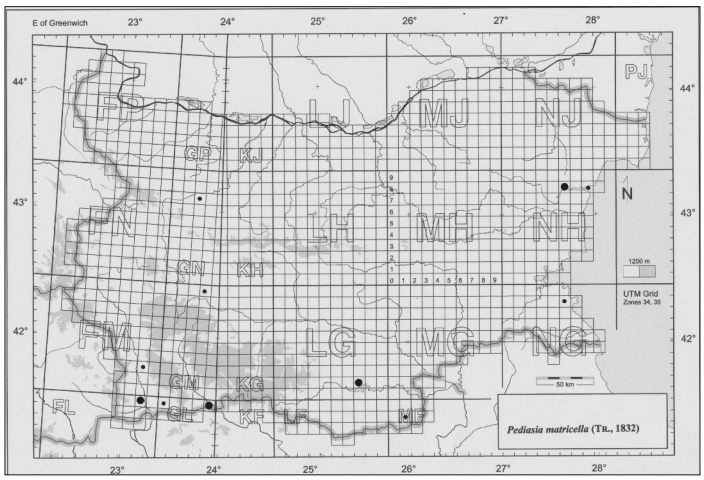
Distribution of *Pediasia luteella* ([DENIS & SCHIFFERMÜLLER], 1775)



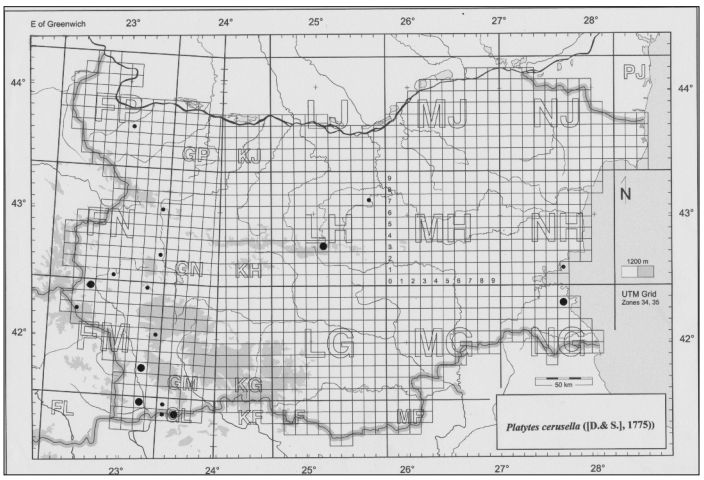
Distribution of *Pediasia contaminella* (HÜBNER, 1796)



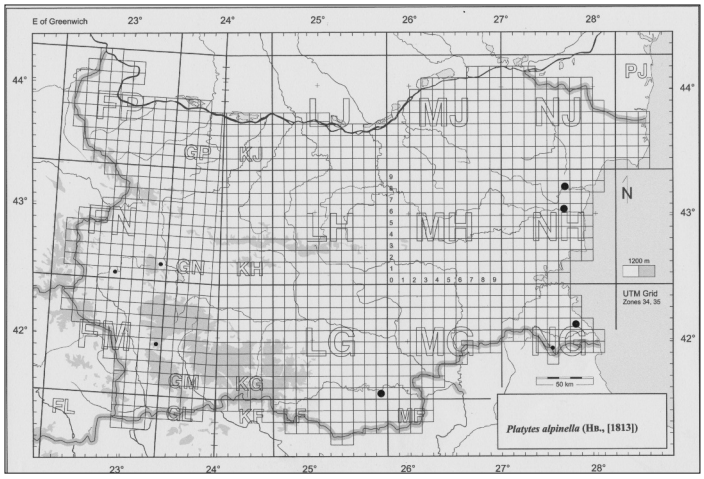
Distribution of *Pediasia aridella* (THUNBERG, 1788)



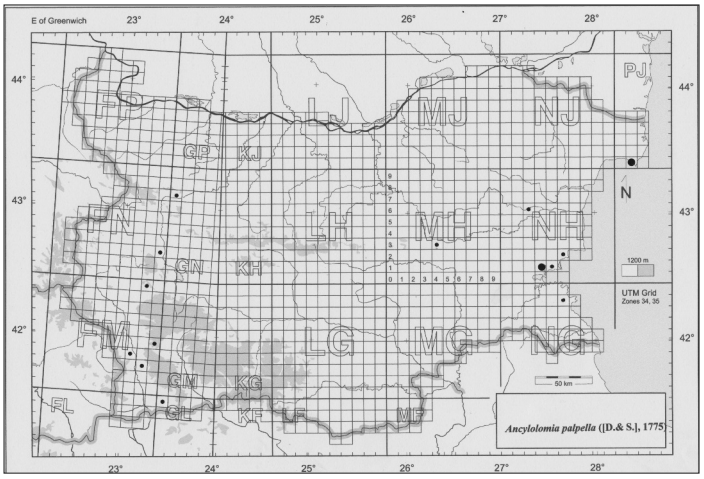
Distribution of *Pediasia matricella* (TREITSCHKE, 1832)



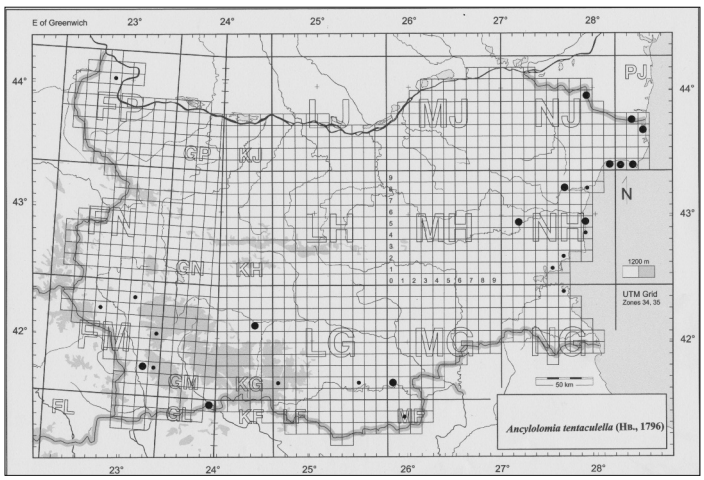
Distribution of *Platytes cerusella* ([DENIS & SCHIFFERMÜLLER], 1775)



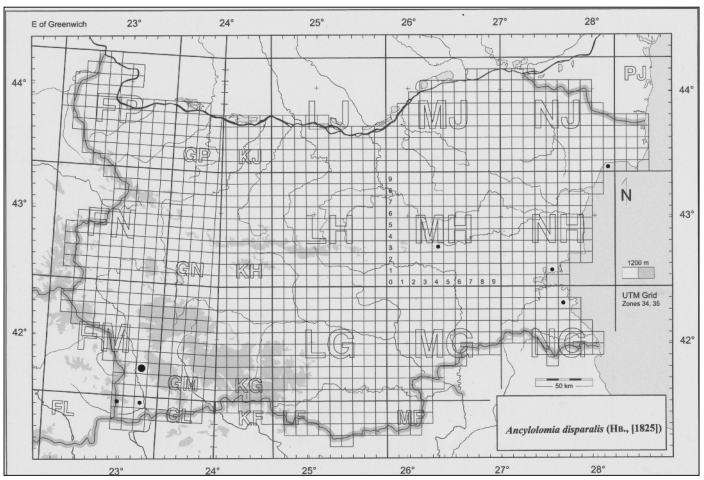
Distribution of *Platytes alpinella* (HÜBNER, [1813])



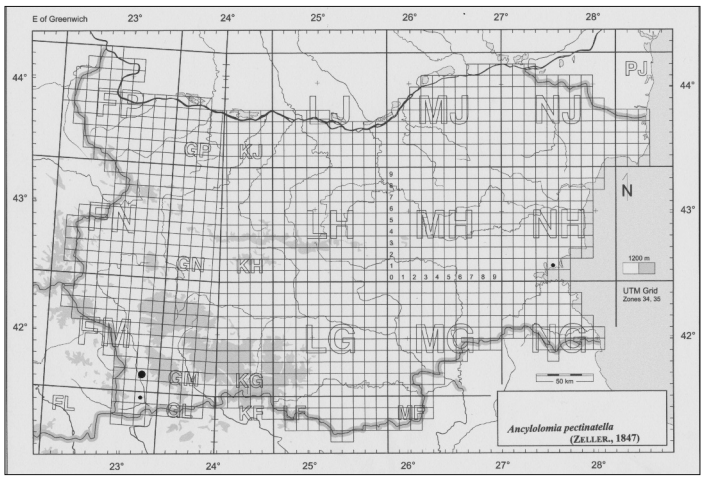
Distribution of *Ancylolomia palpella* ([DENIS & SCHIFFERMÜLLER], 1775)



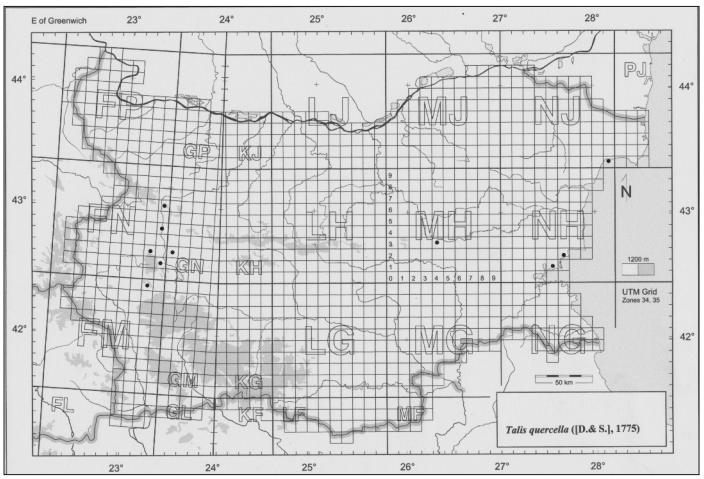
Distribution of *Ancylolomia tentaculella* (HÜBNER, 1796)



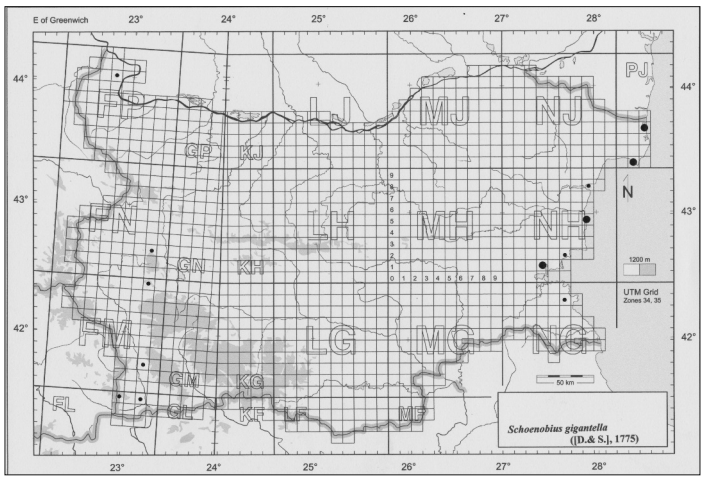
Distribution of *Ancylolomia disparalis* (HÜBNER, [1825])



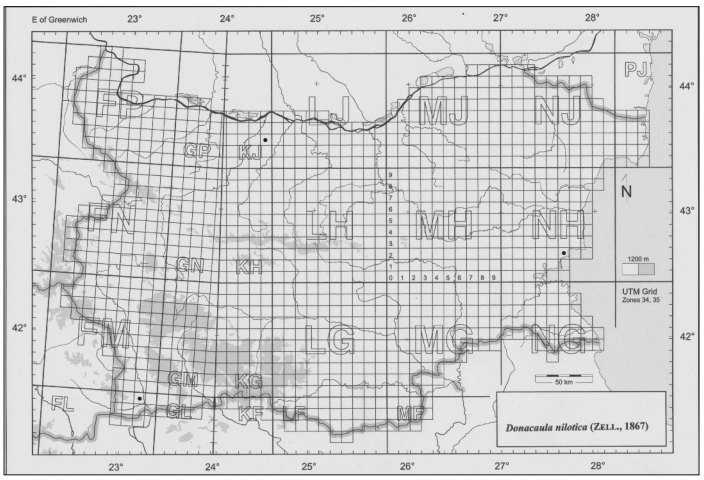
Distribution of *Ancylolomia pectinatella* (ZELLER, 1847)



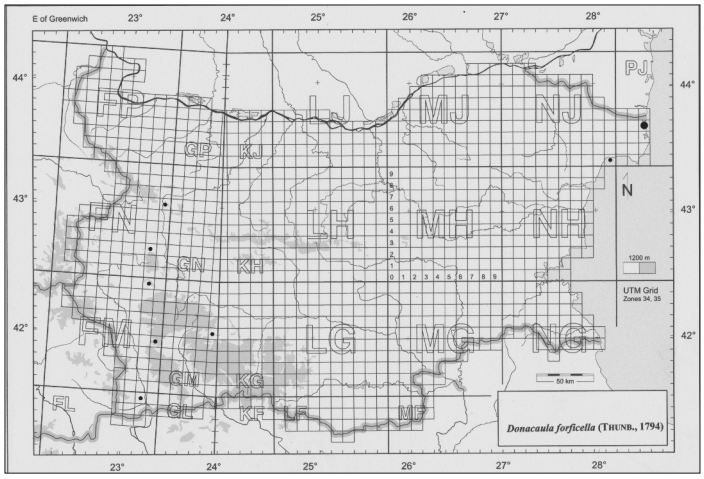
Distribution of *Talis quercella* ([DENIS & SCHIFFERMÜLLER], 1775)



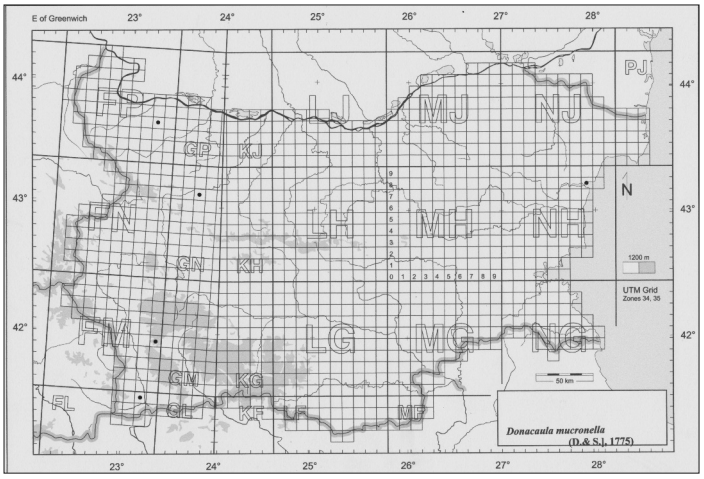
Distribution of *Schoenobius gigantella* ([DENIS & SCHIFFERMÜLLER], 1775)



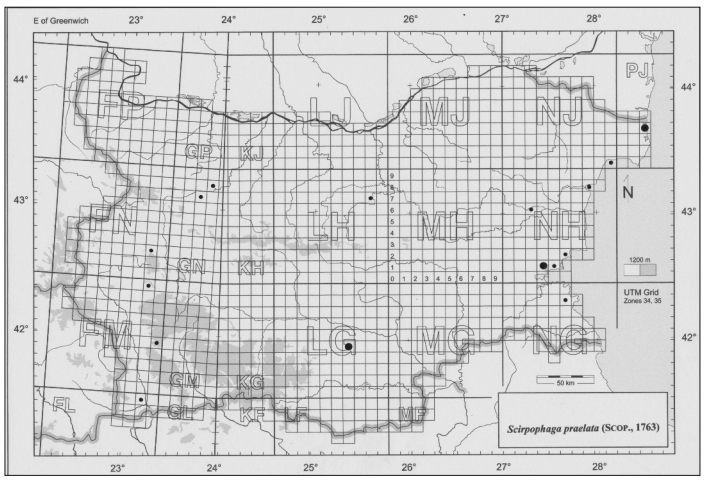
Distribution of *Donacaula nilotica* (ZELLER, 1867)



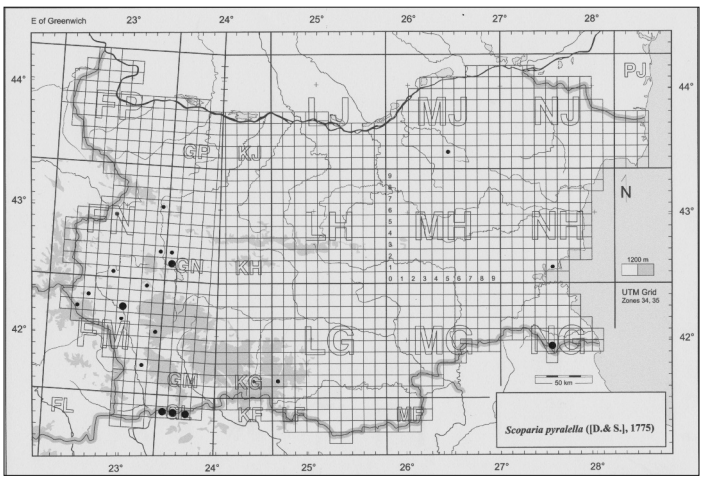
Distribution of *Donacaula forficella* (THUNBERG, 1794)



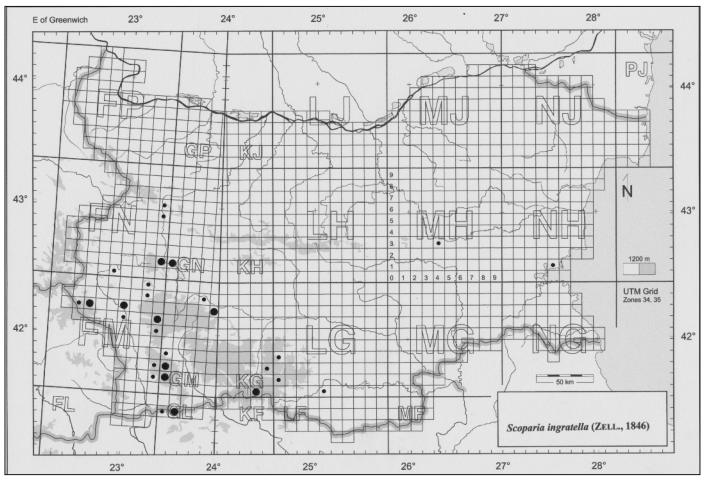
Distribution of *Donacaula mucronella* (DENIS & SCHIFFERMÜLLER], 1775)



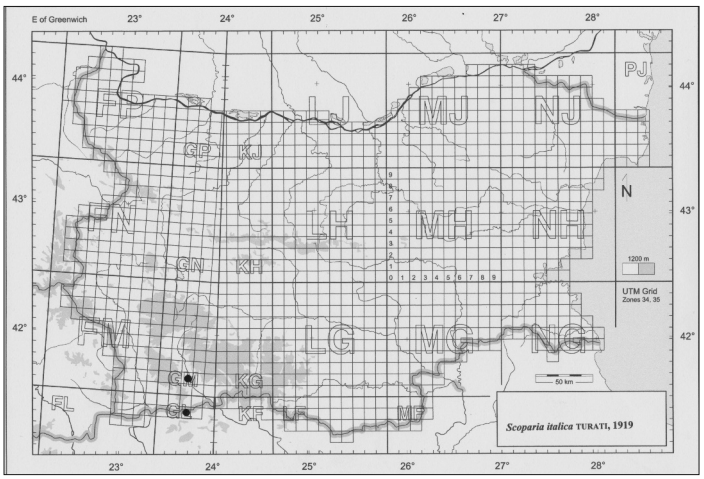
Distribution of *Scirpophaga praelata* (SCOPOLI, 1763)



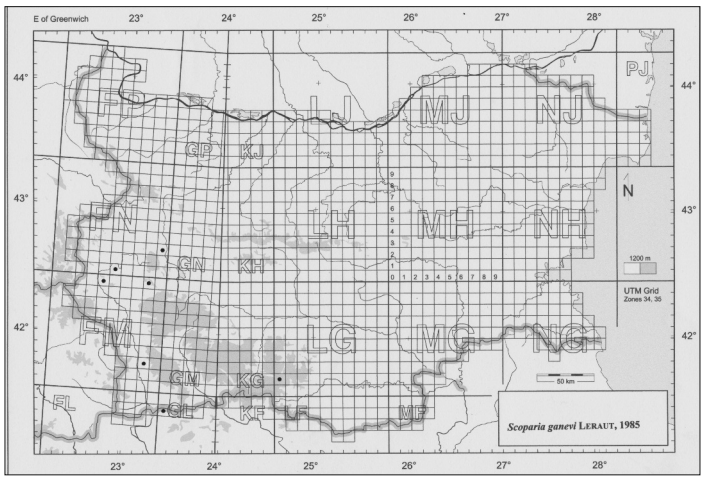
Distribution of *Scoparia pyralella* ([DENIS & SCHIFFERMÜLLER], 1775)



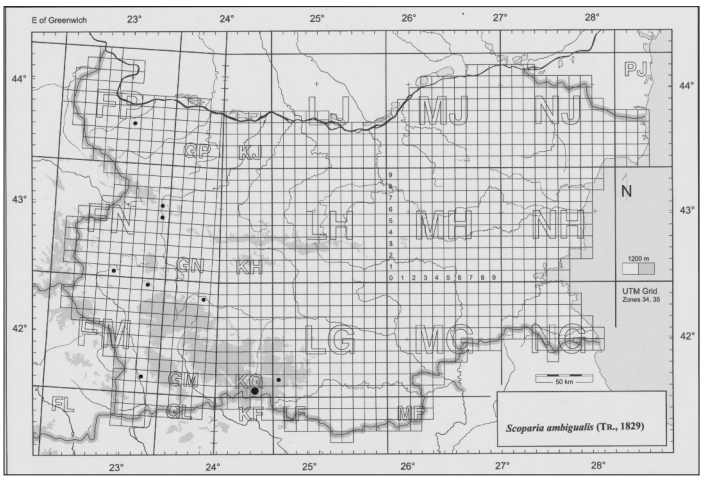
Distribution of *Scoparia ingratella* (ZELLER, 1846)



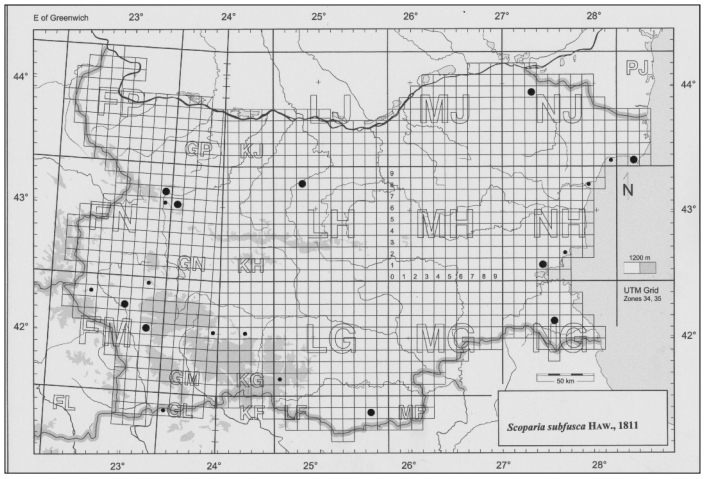
Distribution of *Scoparia italica* TURATI, 1919



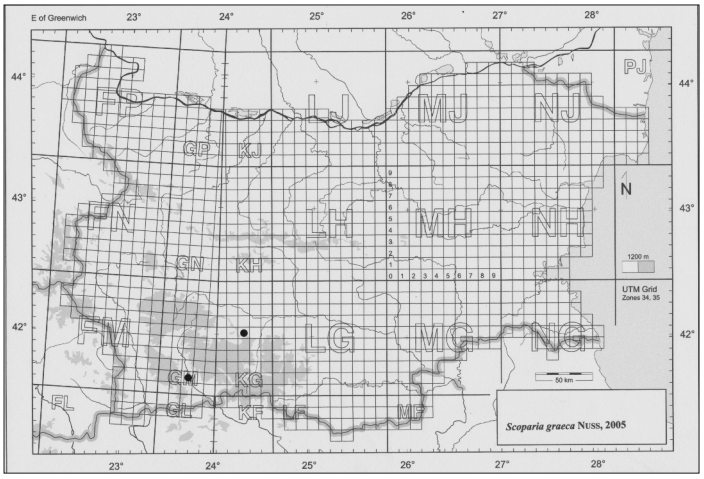
Distribution of *Scoparia ganevi* LERAUT, 1985



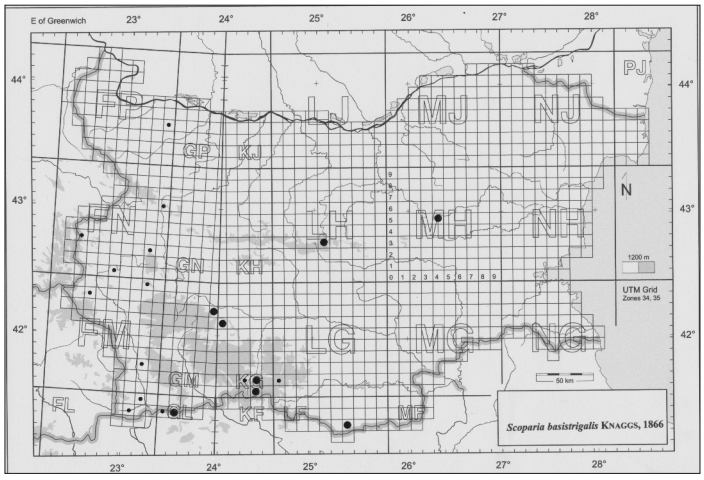
Distribution of *Scoparia ambigualis* (TREITSCHKE, 1829)



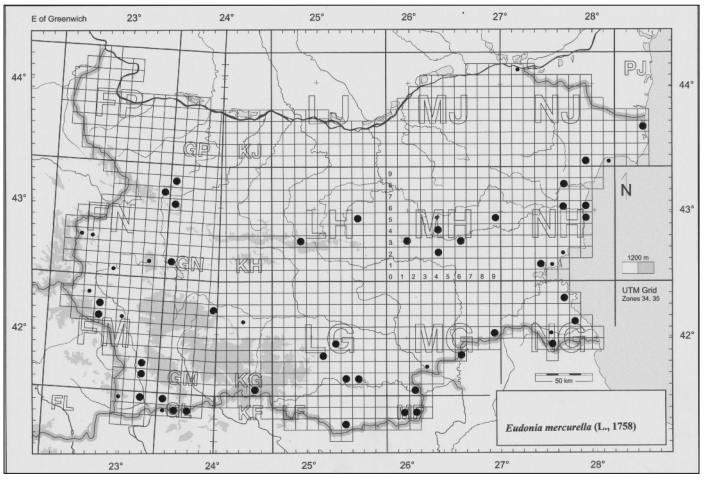
Distribution of *Scoparia subfusca* HAWORTH, 1811



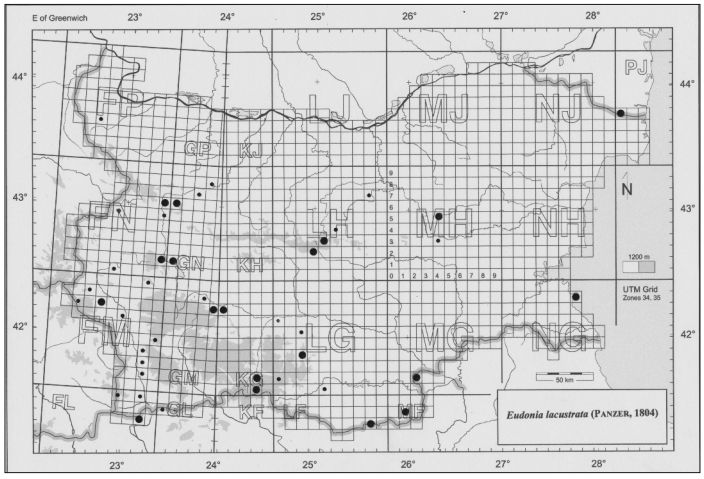
Distribution of *Scoparia graeca* NUSS, 2005



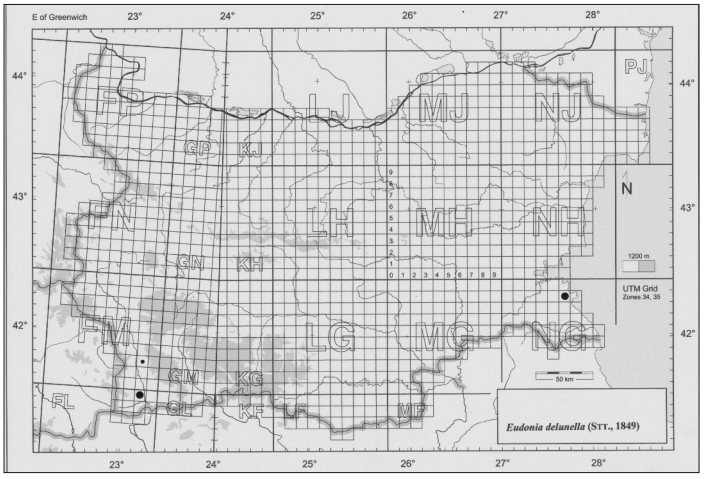
Distribution of *Scoparia basistrigalis* KNAGGS, 1866



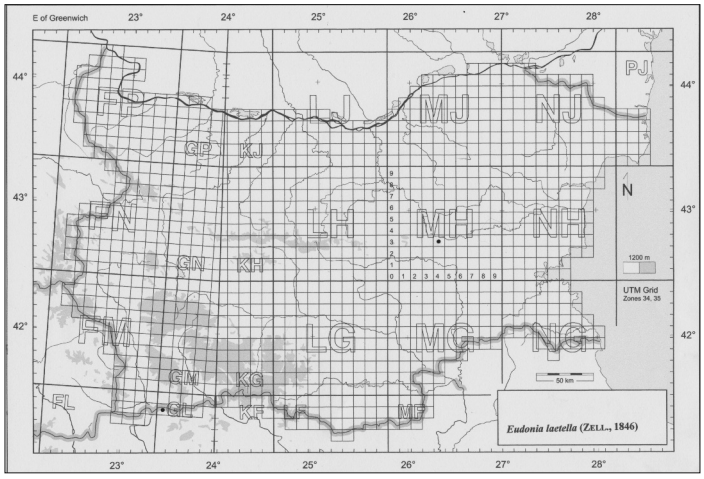
Distribution of *Eudonia mercurella* (LINNAEUS, 1758)



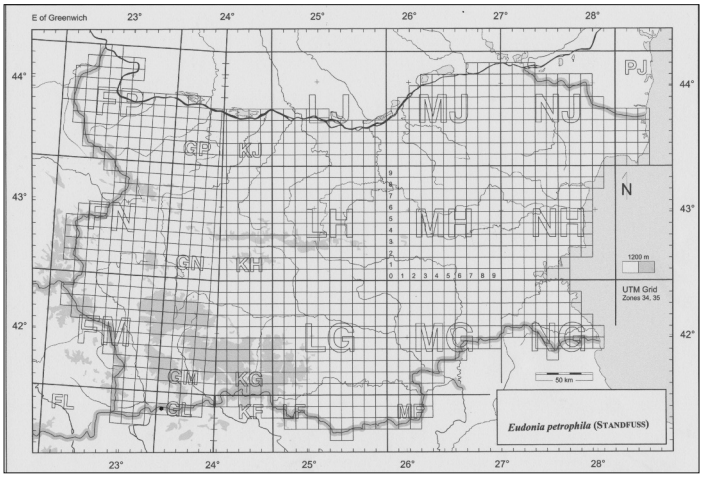
Distribution of *Eudonia lacustrata* (PANZER, 1804)



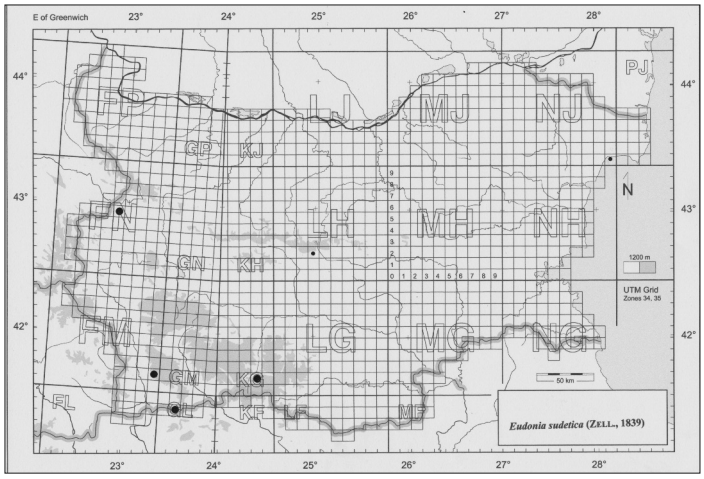
Distribution of *Eudonia delunella* (STAINTON, 1849)



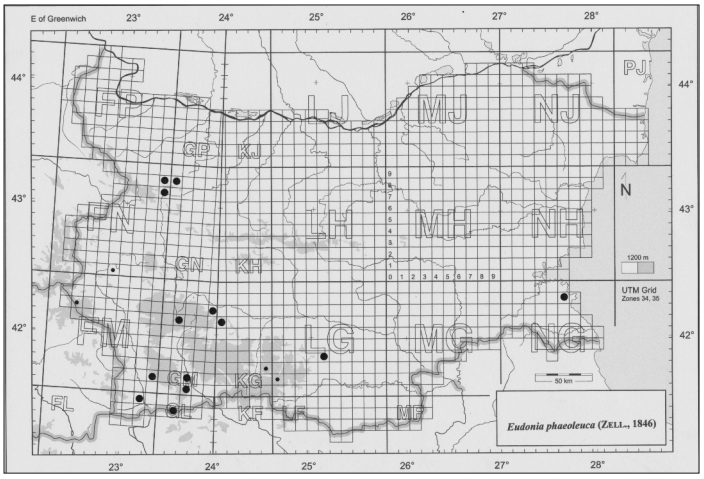
Distribution of *Eudonia laetella* (ZELLER, 1846)



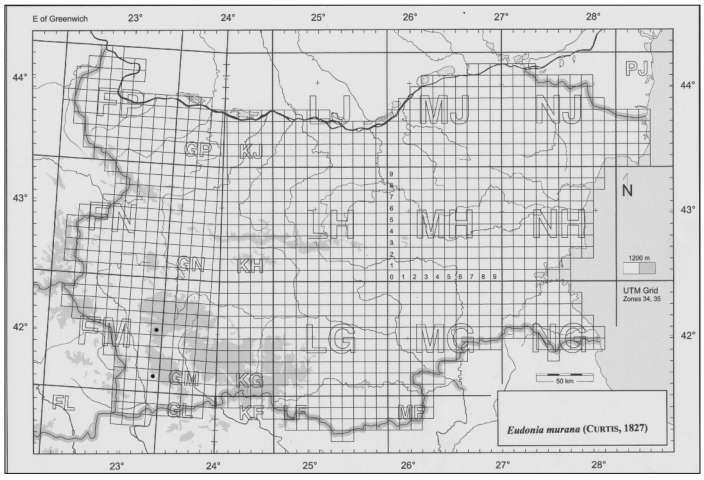
Distribution of *Eudonia petrophila* (STANDFUSS)



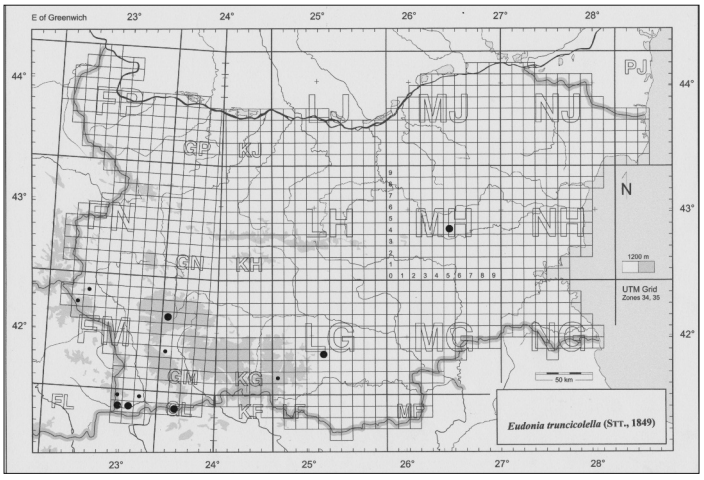
Distribution of *Eudonia sudetica* (Zeller, 1839)



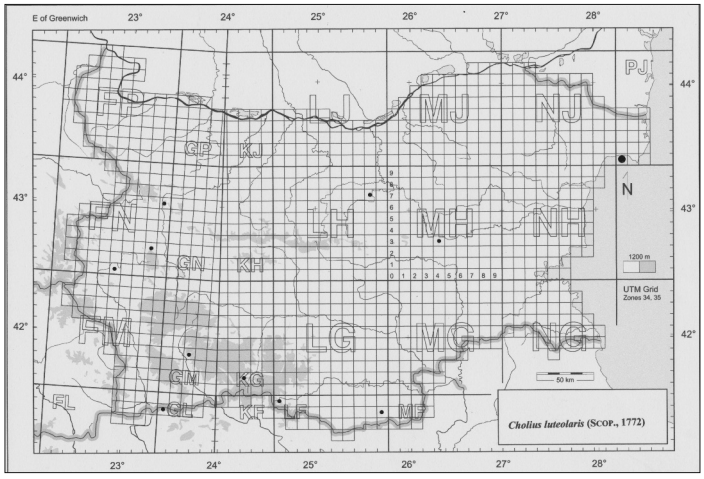
Distribution of *Eudonia phaeoleuca* (Zeller, 1846)



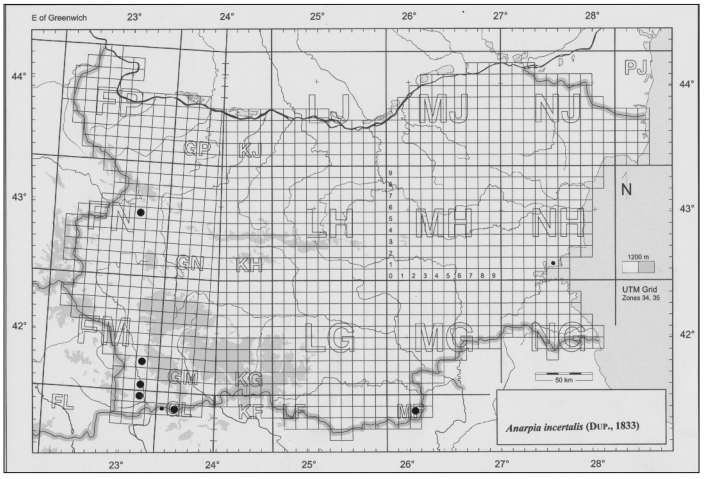
Distribution of *Eudonia murana* (Curtis, 1827)



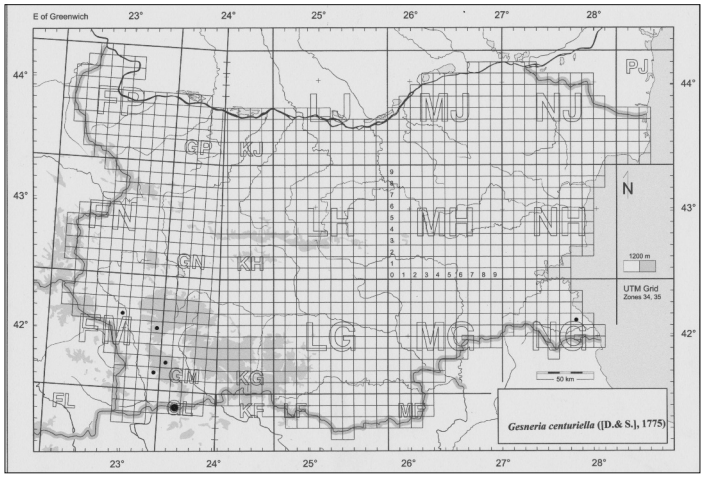
Distribution of *Eudonia truncicolella* (Stainton, 1849)



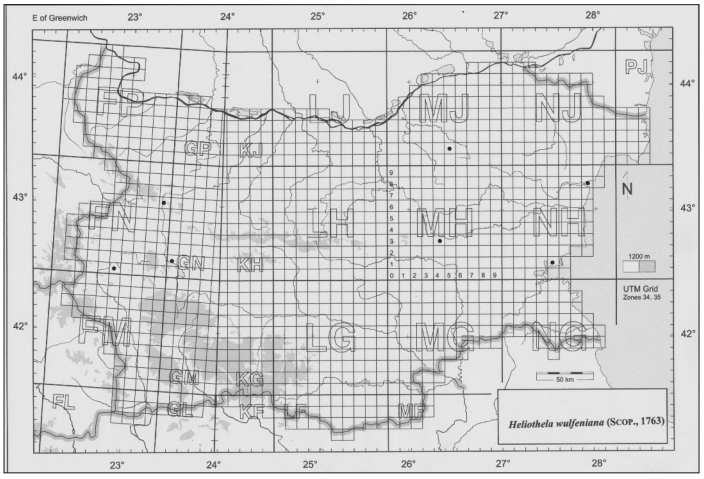
Distribution of *Cholius luteolaris* (Scopoli, 1772)



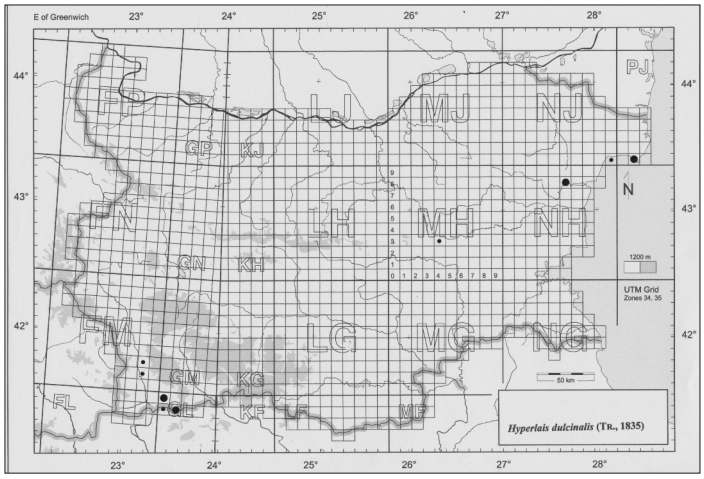
Distribution of *Anarpia incertalis* (Duponchel, 1833)



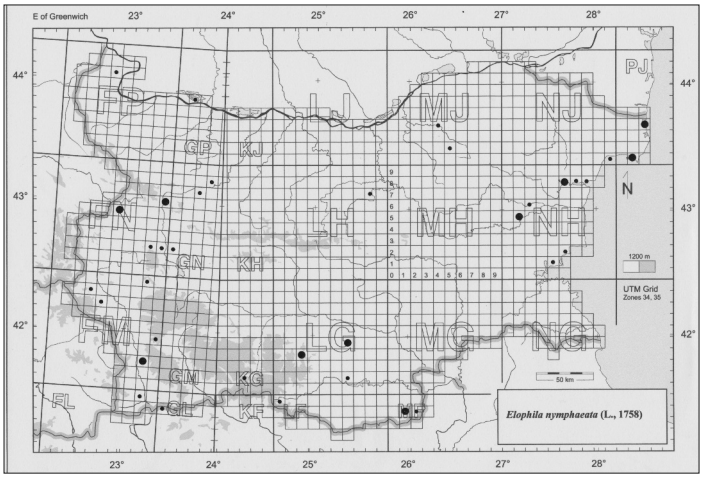
Distribution of *Gesneria centuriella* ([Denis & Schiffermüller], 1775)



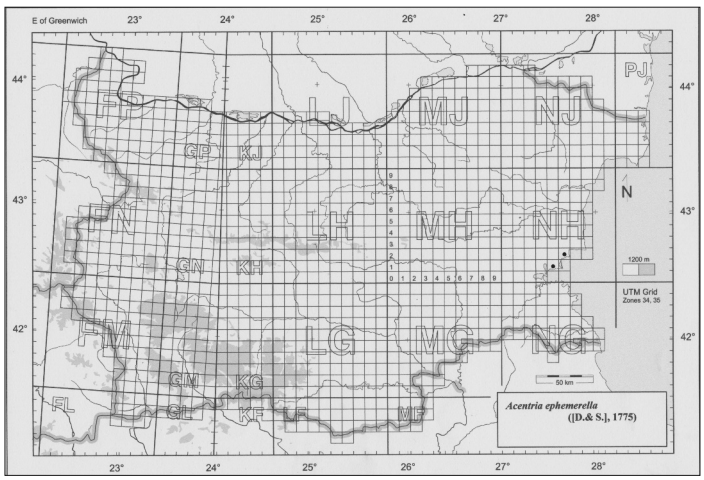
Distribution of *Heliothela wulfeniana* (Scopoli, 1763)



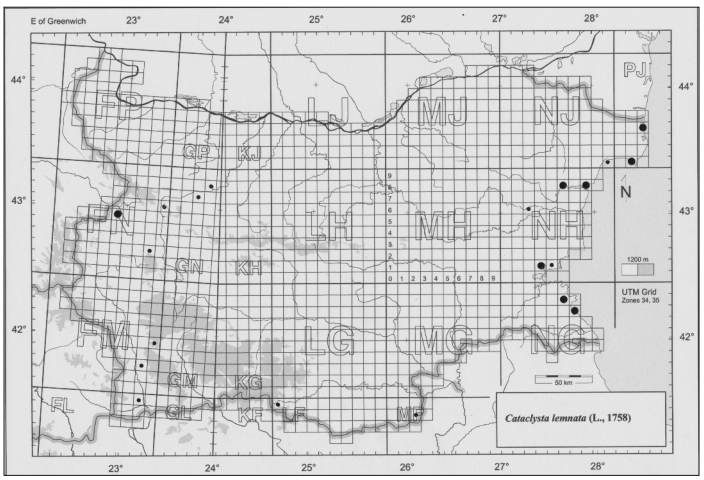
Distribution of *Hyperlais dulcinalis* (Treitschke, 1835)



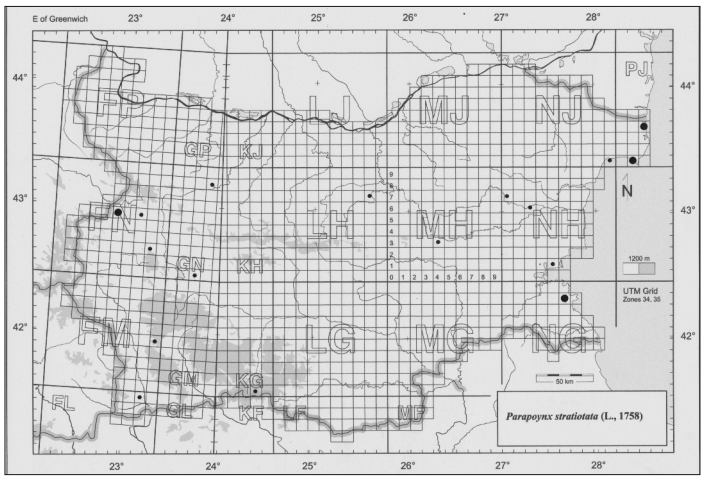
Distribution of *Elophila nymphaeata* (Linnaeus, 1758)



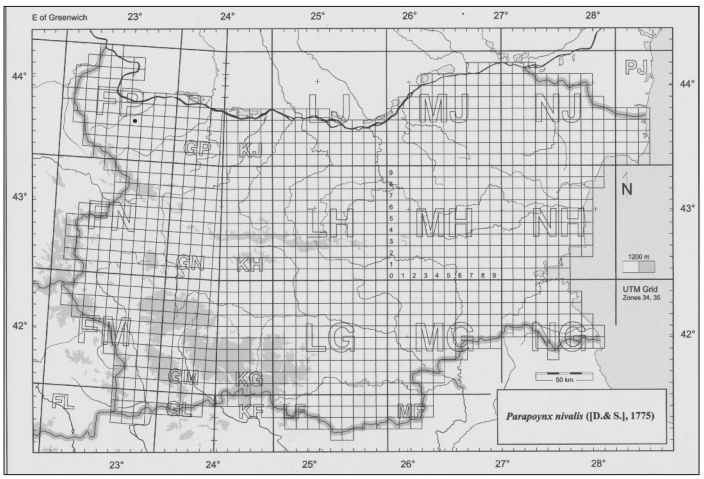
Distribution of *Acentria ephemerella* ([Denis & Schiffermüller], 1775)



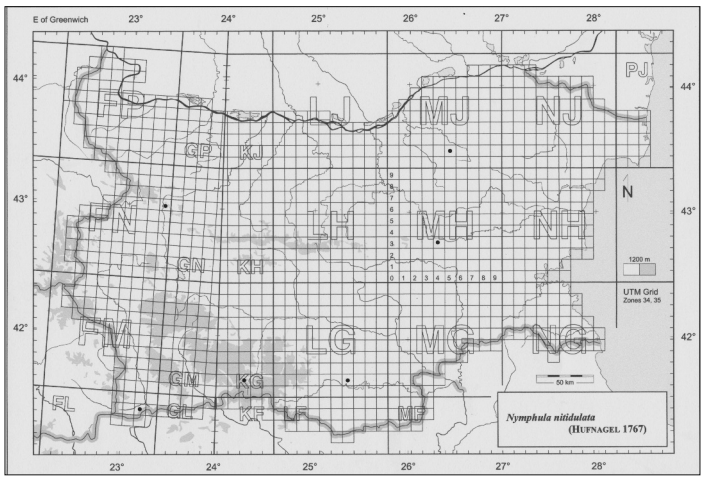
Distribution of *Cataclysta lemnata* (Linnaeus, 1758)



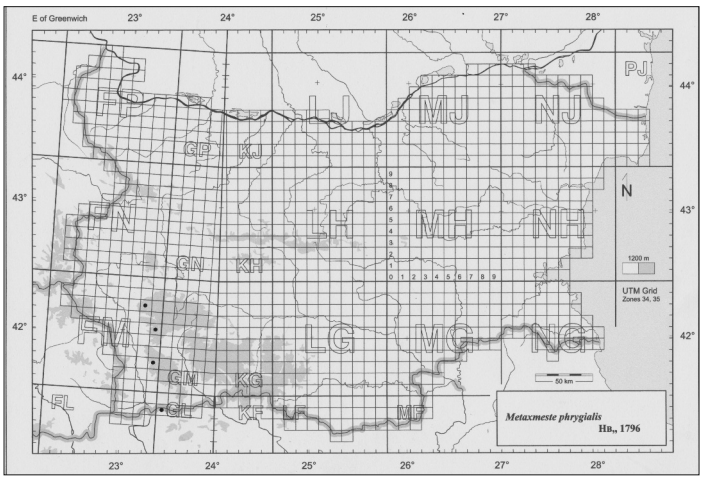
Distribution of *Parapoynx stratiotata* (Linnaeus, 1758)



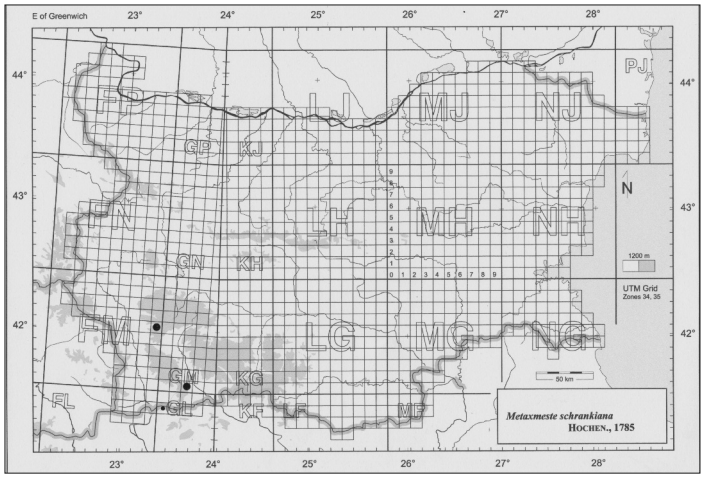
Distribution of *Parapoynx nivalis* ([Denis & Schiffermüller], 1775)



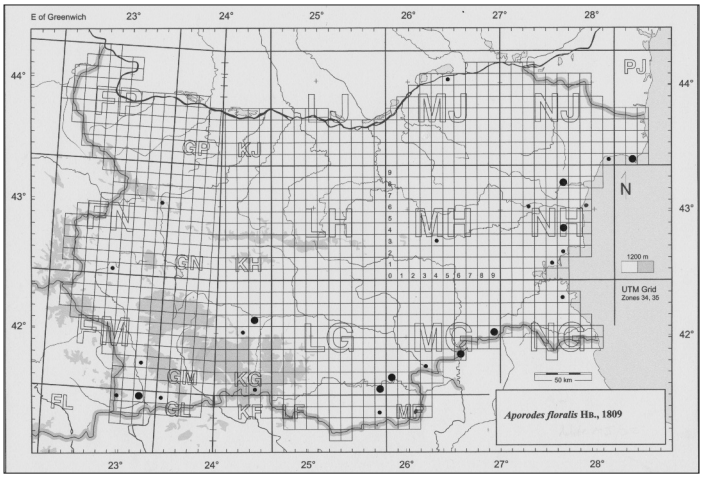
Distribution of *Nymphula nitidulata* (Hufnagel, 1767)



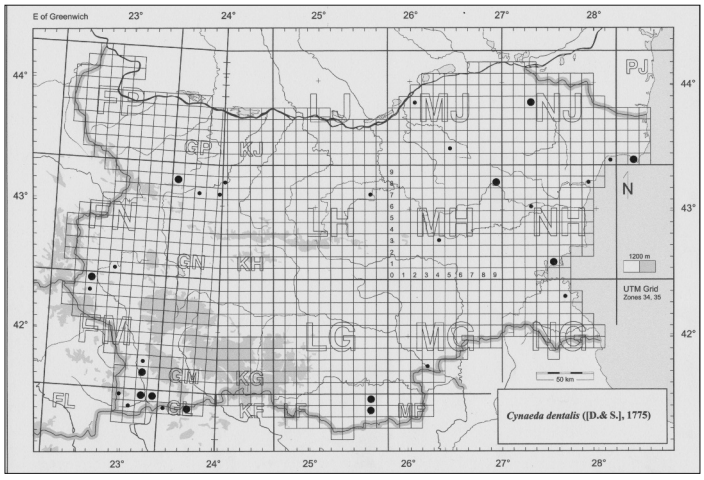
Distribution of *Metaxmeste phrygialis* Hübner, 1796



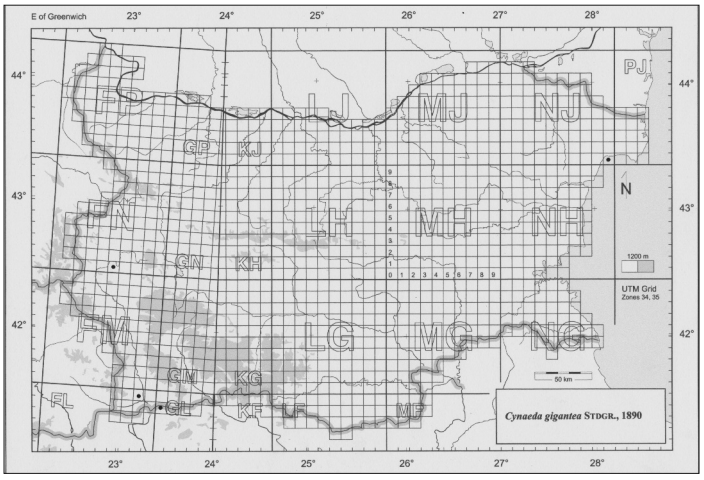
Distribution of *Metaxmeste schrankiana* Hochenwarth, 1785



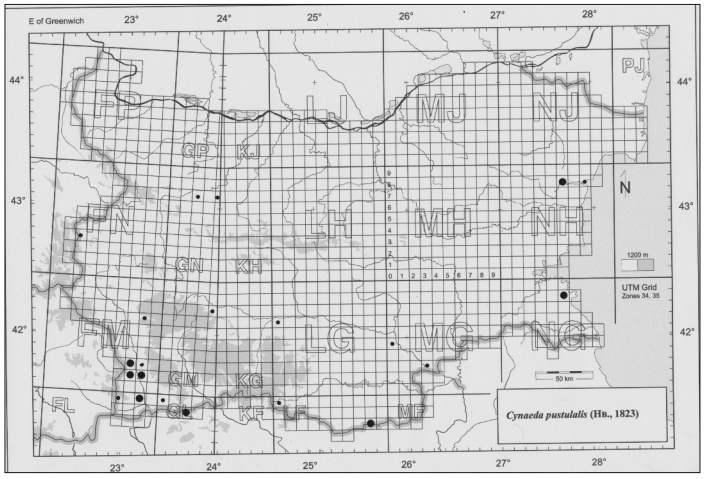
Distribution of *Aporodes floralis* Hübner, 1809



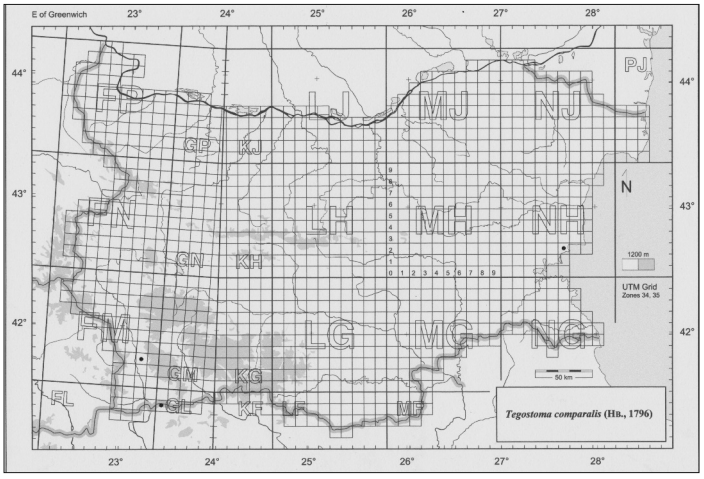
Distribution of *Cynaeda dentalis* ([Denis & Schiffermüller], 1775)



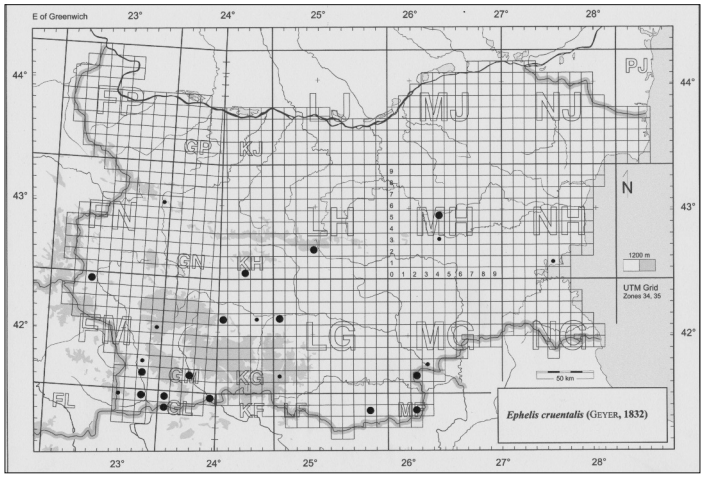
Distribution of *Cynaeda gigantea* Staudinger, 1890



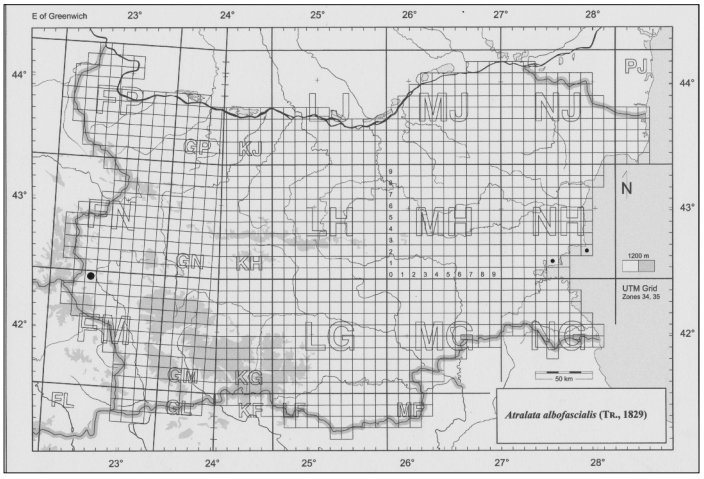
Distribution of *Cynaeda pustulalis* (Hübner, 1823)



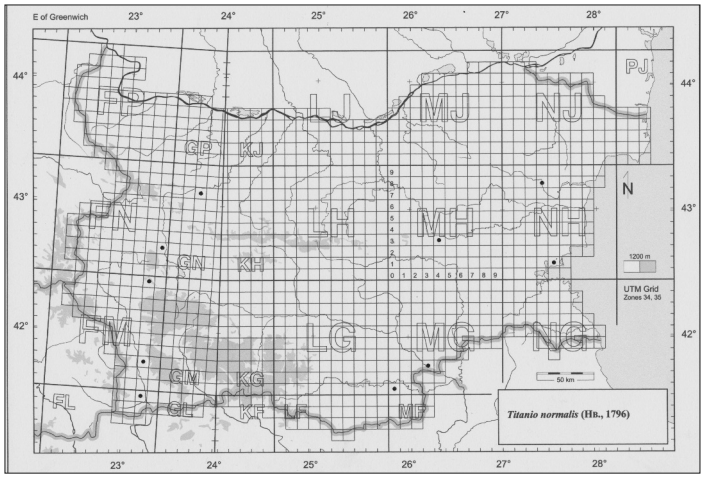
Distribution of *Tegostoma comparalis* (Hübner, 1796)



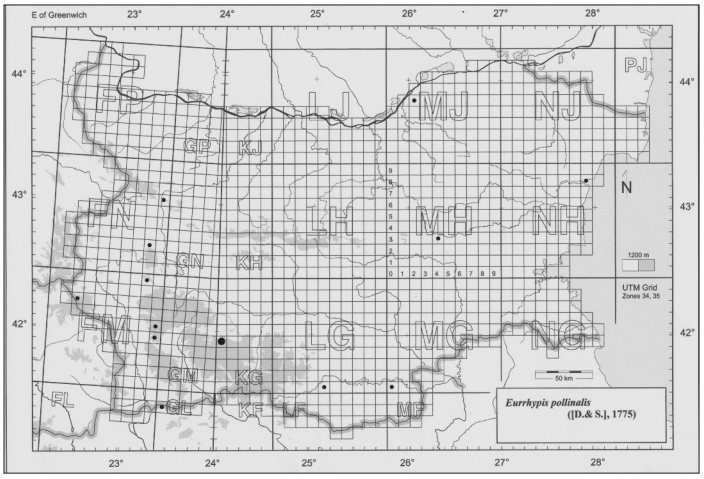
Distribution of *Ephelis cruentalis* (Geyer, 1832)



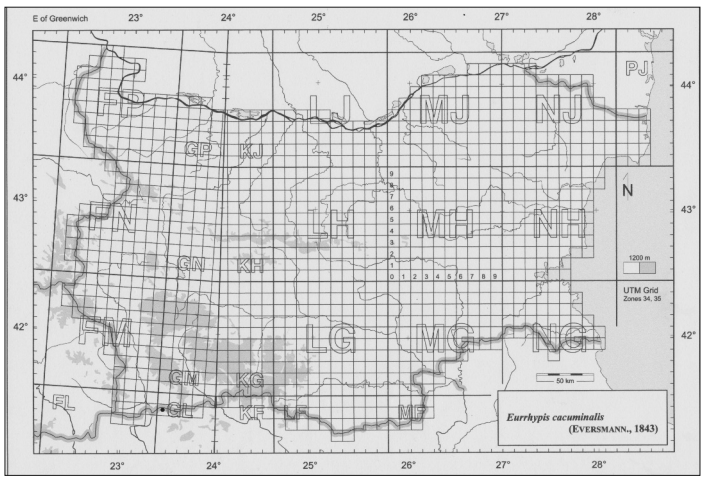
Distribution of *Atralata albofascialis* (Treitschke, 1829)



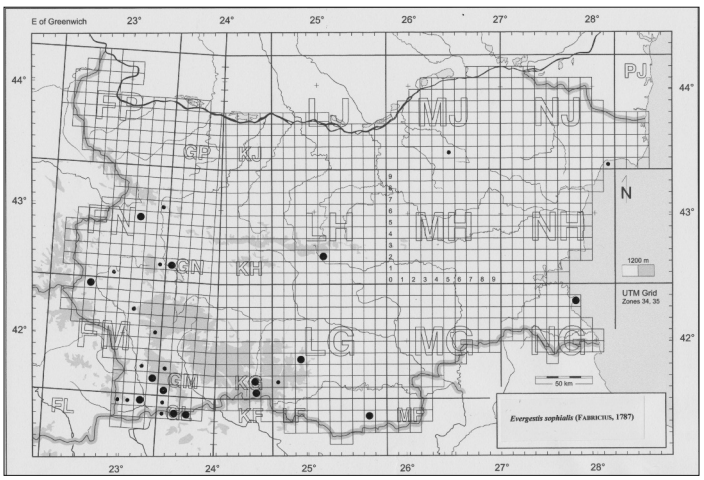
Distribution of *Titanio normalis* (Hübner, 1796)



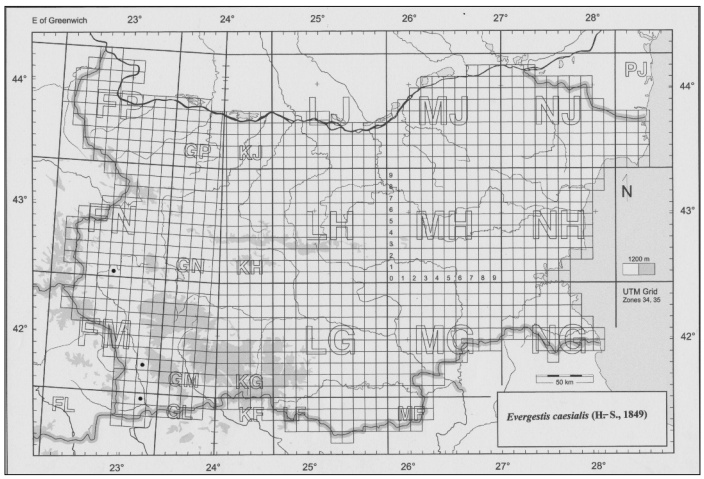
Distribution of *Eurrhypis pollinalis* ([Denis & Schiffermüller], 1775)



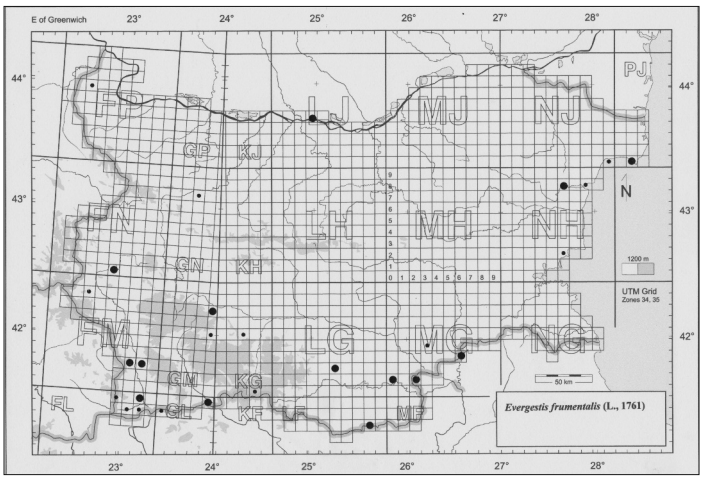
Distribution of *Eurrhypis cacuminalis* (Eversmann, 1843)



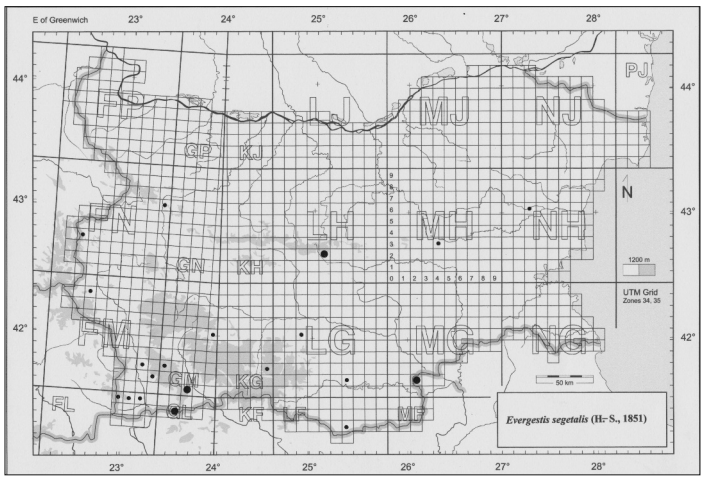
Distribution of *Evergestis sophialis* (Fabricius, 1787)



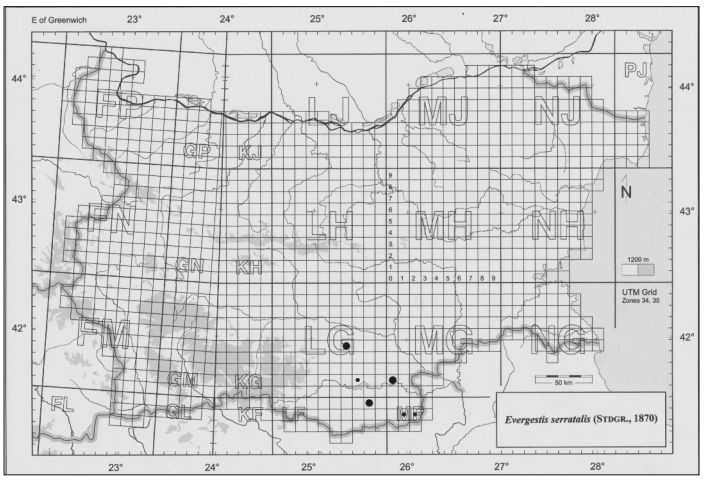
Distribution of *Evergestis caesialis* (Herrich-Schäffer, 1849)



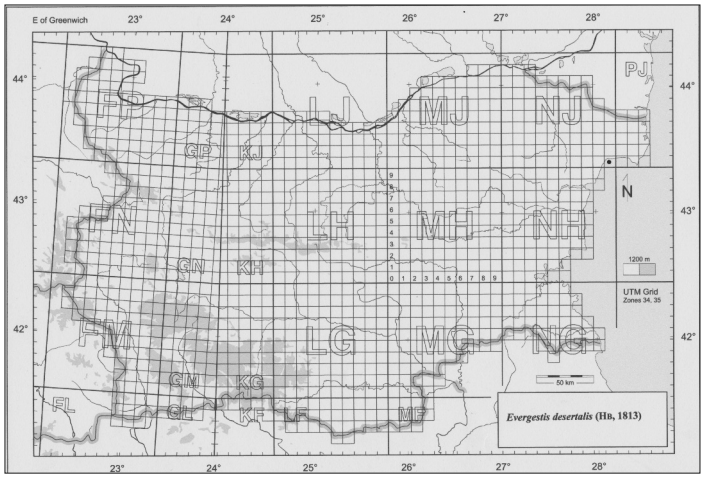
Distribution of *Evergestis frumentalis* (Linnaeus, 1761)



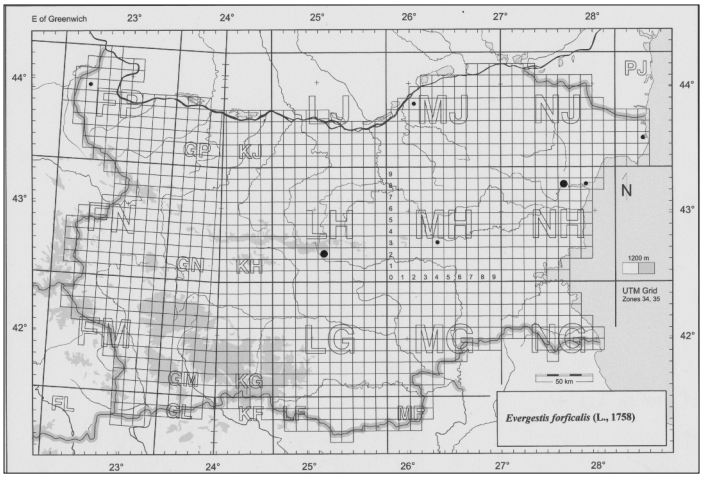
Distribution of *Evergestis segetalis* (Herrich-Schäffer, 1851)



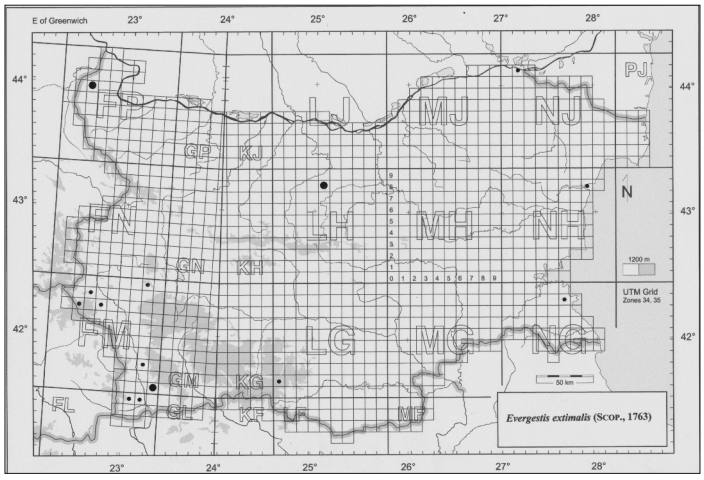
Distribution of *Evergestis serratalis* (Staudinger, 1870)



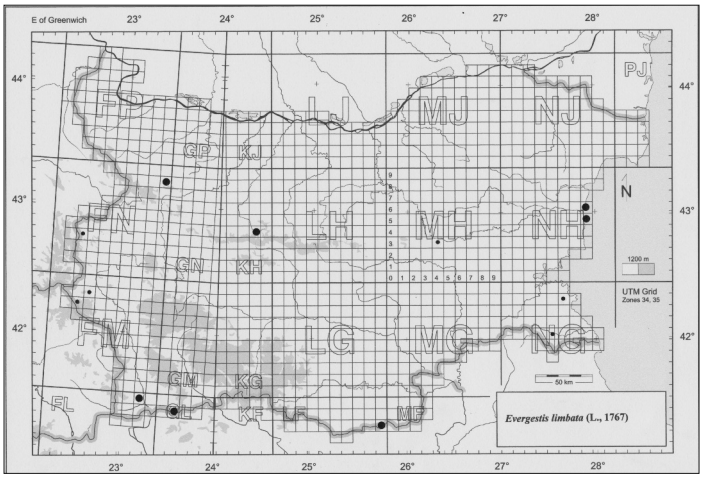
Distribution of *Evergestis desertalis* (Hübner, 1813)



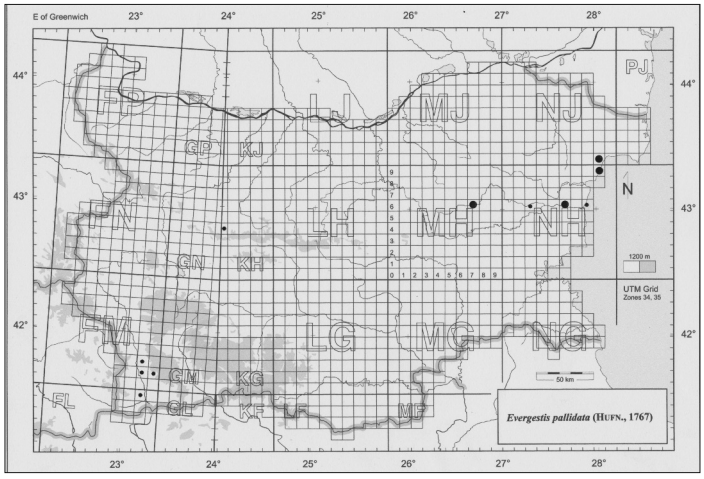
Distribution of *Evergestis forficalis* (Linnaeus, 1758)



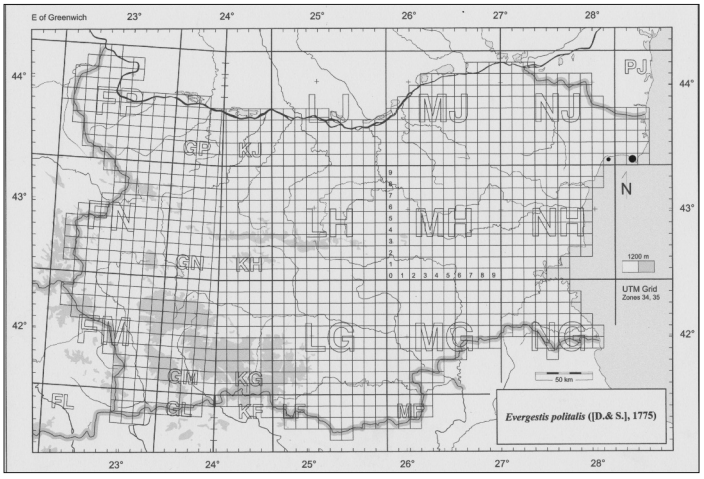
Distribution of *Evergestis extimalis* (Scopoli, 1763)



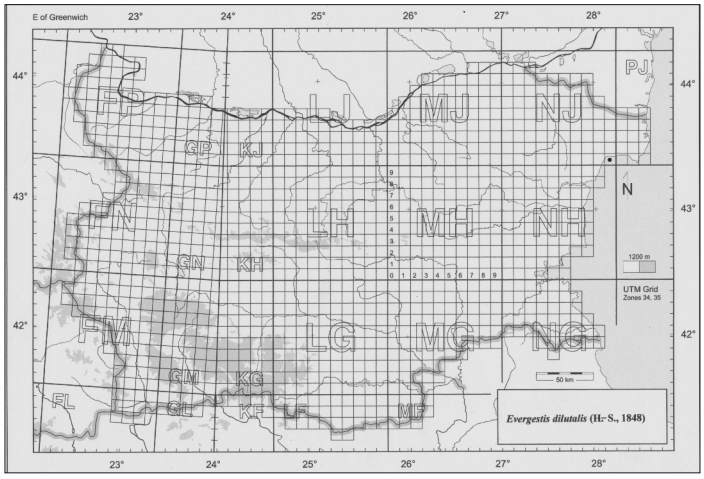
Distribution of *Evergestis limbata* (Linnaeus, 1767)



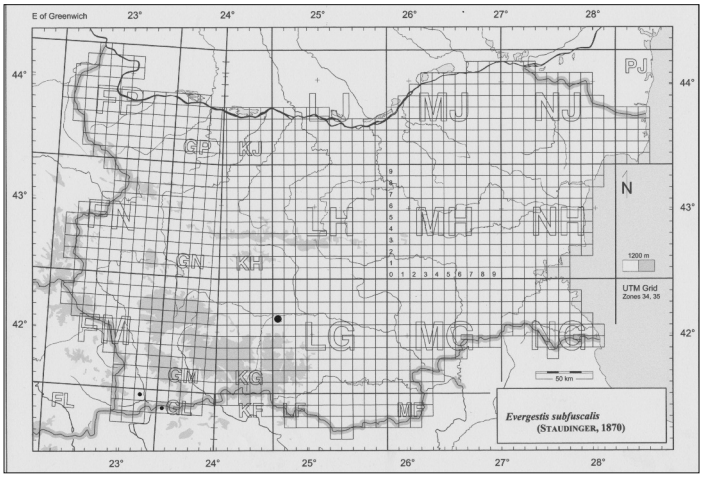
Distribution of *Evergestis pallidata* (Hufnagel. 1767)



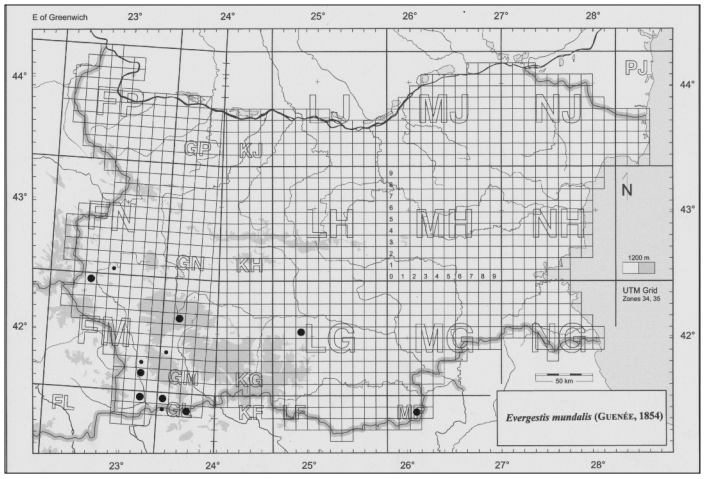
Distribution of *Evergestis politalis* ([Denis & Schiffermüller], 1775)



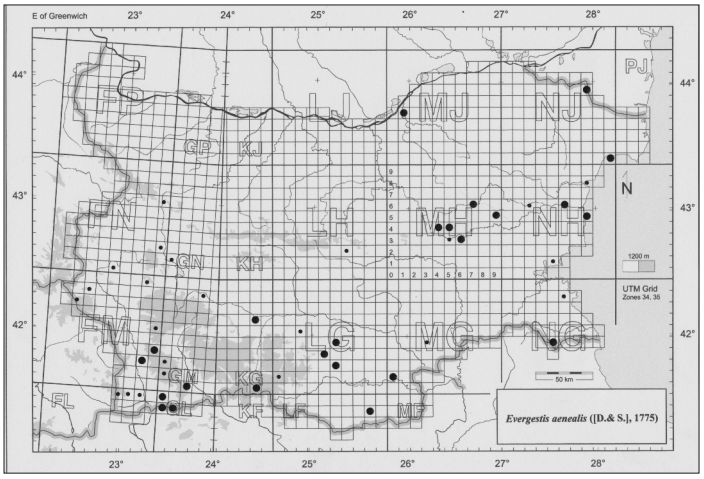
Distribution of *Evergestis dilutalis* (Herrich-Schäffer, 1848)



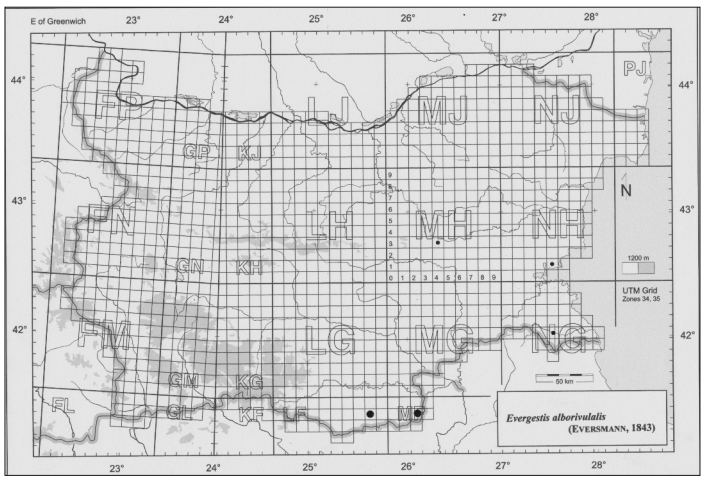
Distribution of *Evergestis subfuscalis* (Staudinger, 1870)



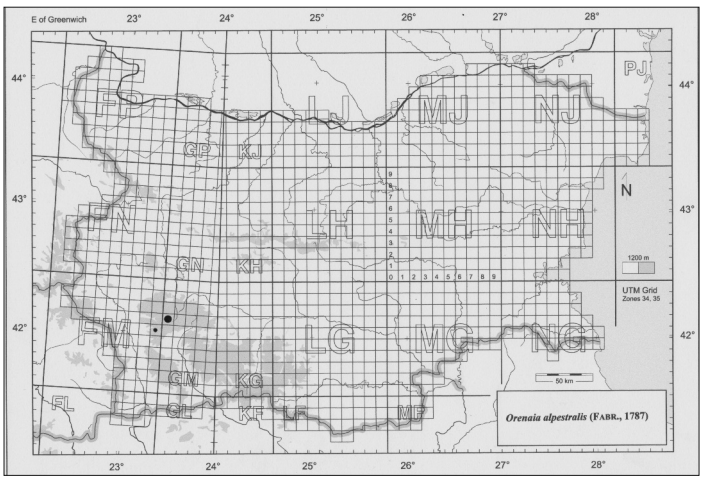
Distribution of *Evergestis mundalis* (Guenée, 1854)



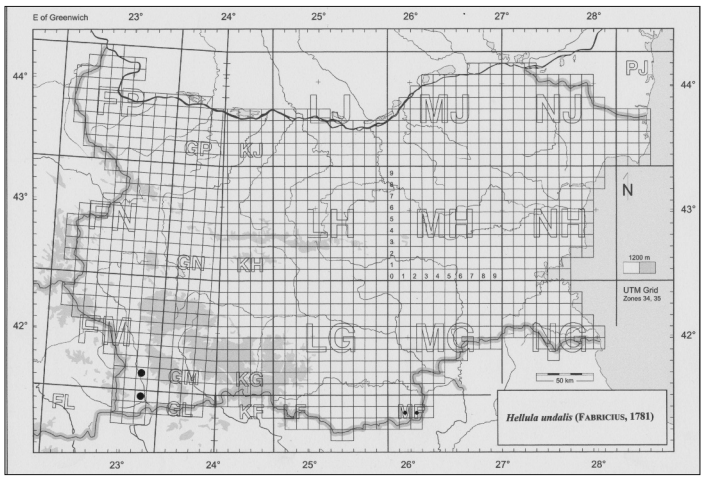
Distribution of *Evergestis aenealis* ([Denis & Schiffermüller], 1775)



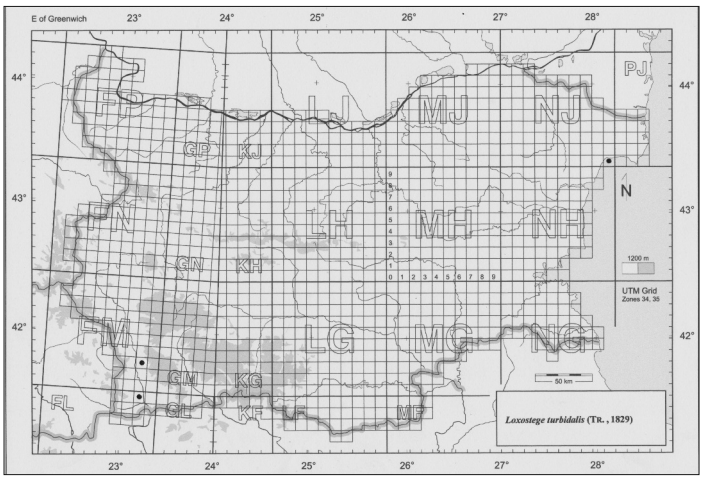
Distribution of *Evergestis alborivulalis* (Eversmann, 1843)



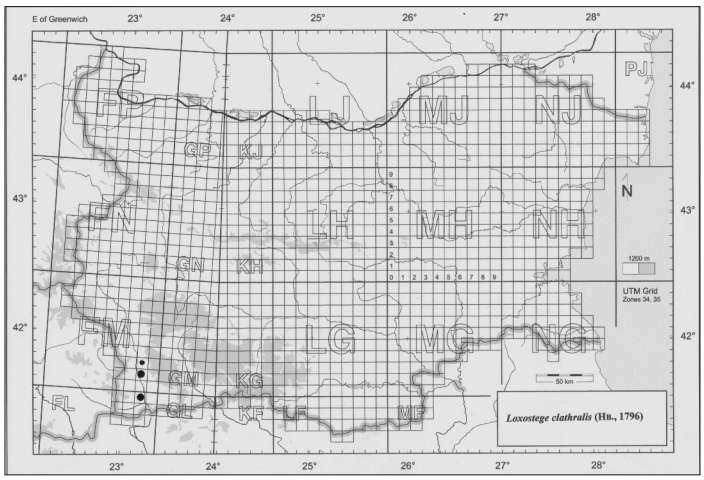
Distribution of *Orenaia alpestralis* (Fabricius, 1787)



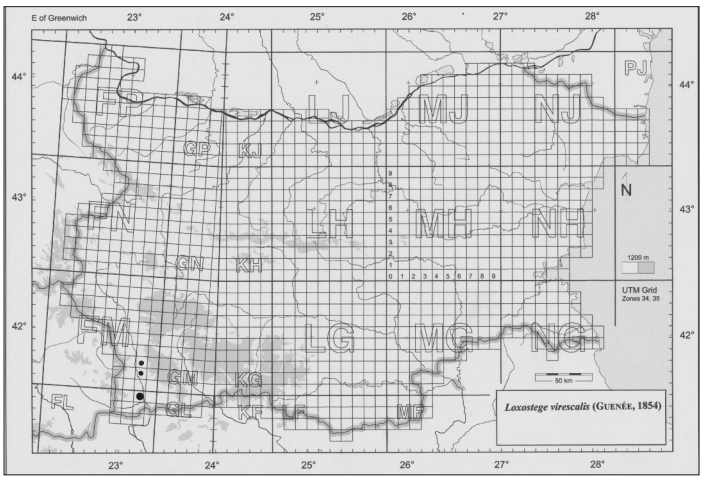
Distribution of *Hellula undalis* (Fabricius, 1781)



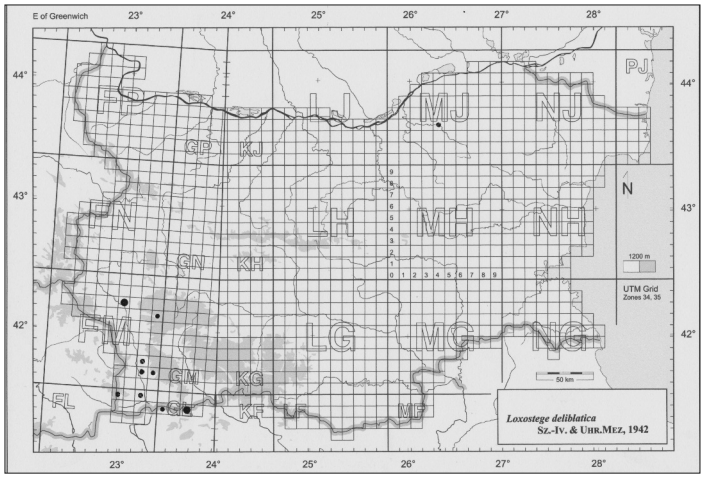
Distribution of *Loxostege turbidalis* (Treitschke, 1829)



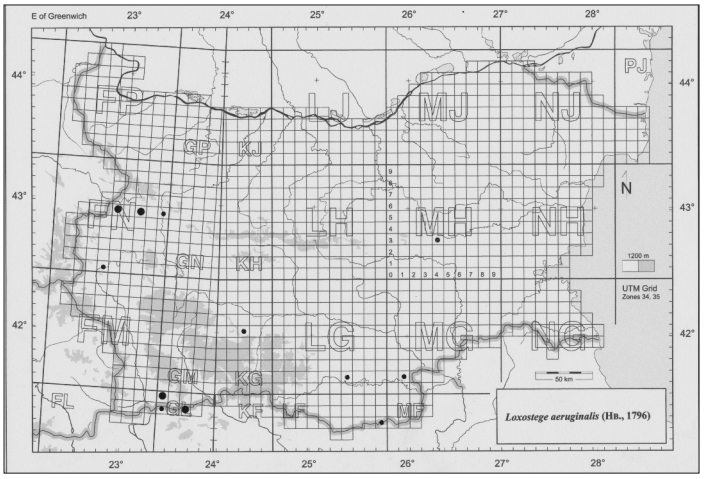
Distribution of *Loxostege clathralis* (Hübner, [1813] 1796)



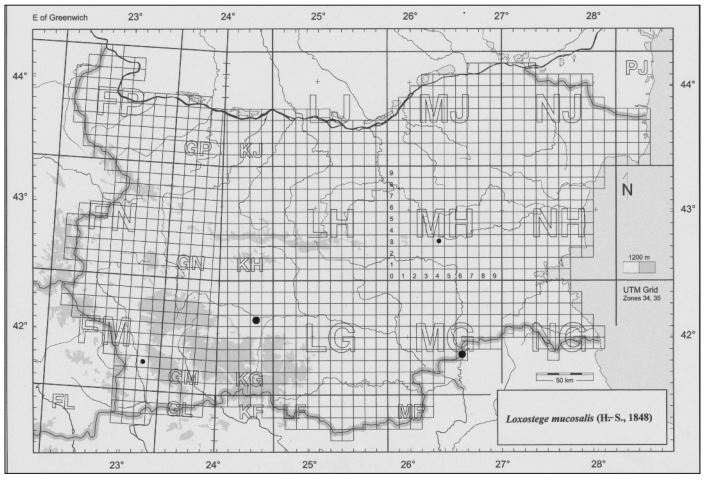
Distribution of *Loxostege virescalis* (Guenée, 1854)



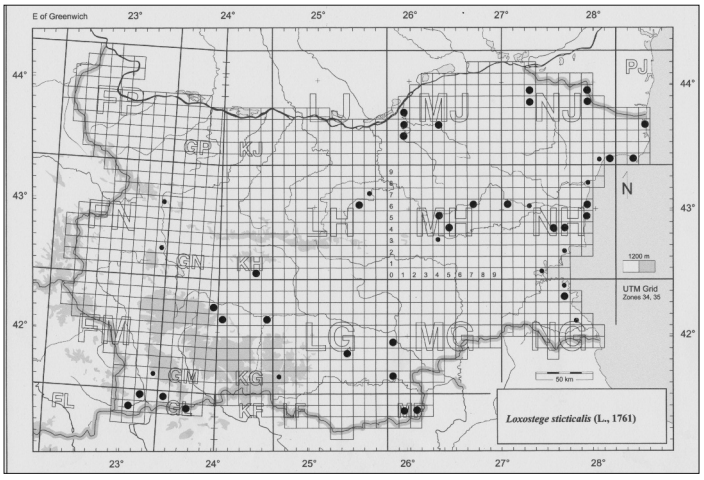
Distribution of *Loxostege deliblatica* Szent-Iványi & Uhrik-Mészáros, 1942



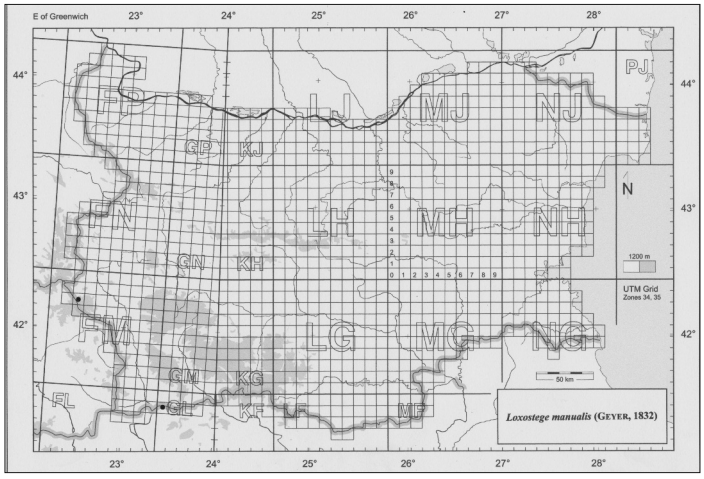
Distribution of *Loxostege aeruginalis* (Hübner, 1796)



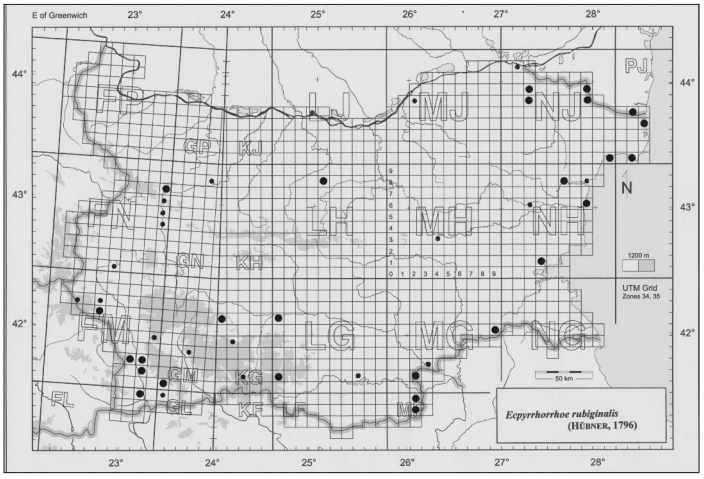
Distribution of *Loxostege mucosalis* (Herrich-Schäffer, 1848)



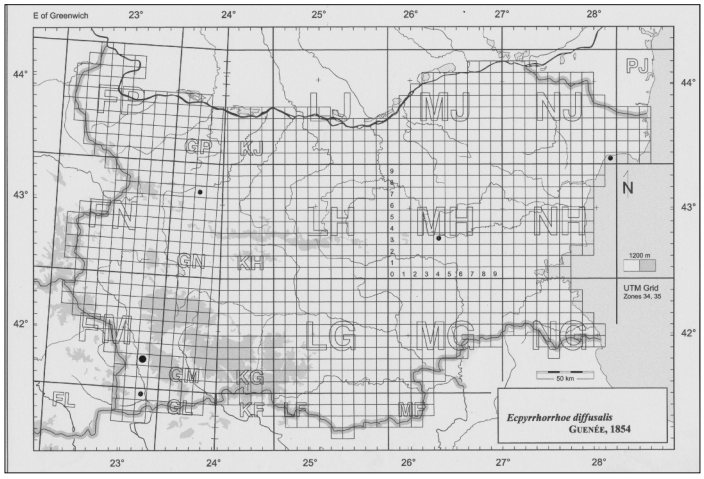
Distribution of *Loxostege sticticalis* (Linnaeus, 1761)



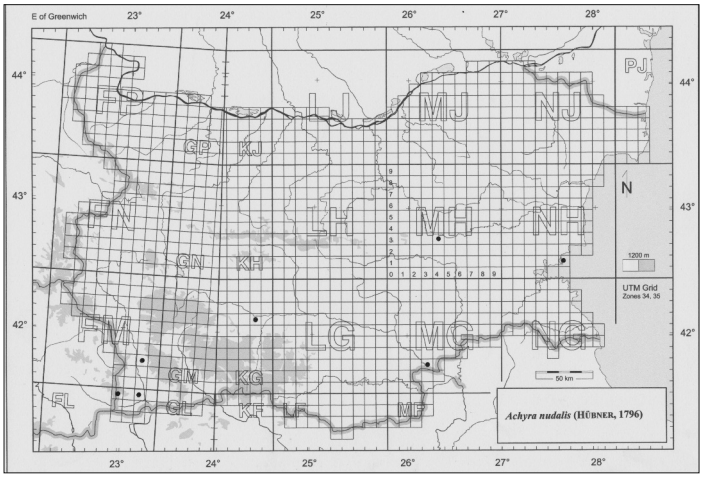
Distribution of *Loxostege manualis* (Geyer, 1832)



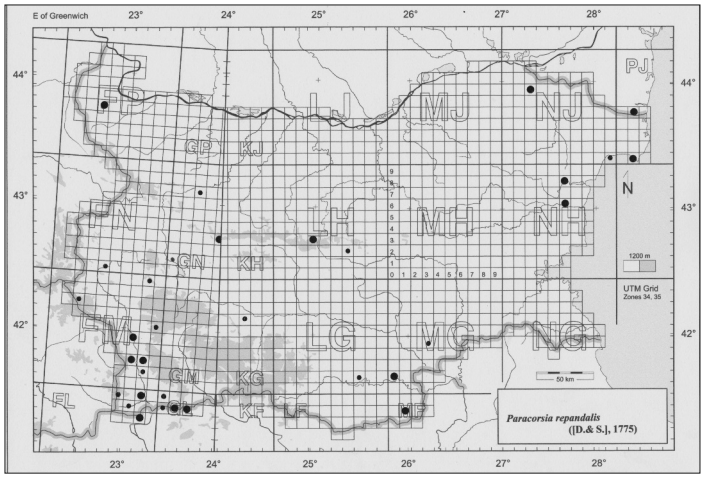
Distribution of *Ecpyrrhorrhoe rubiginalis* (Hübner, 1796)



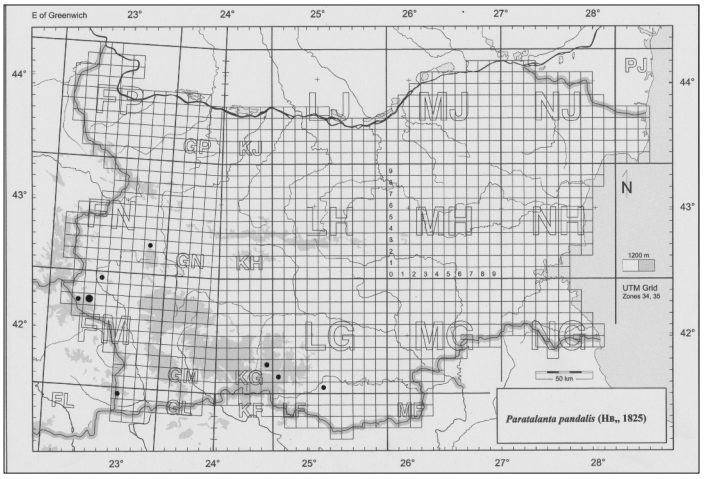
Distribution of *Ecpyrrhorrhoe diffusalis* Guenée, 1854



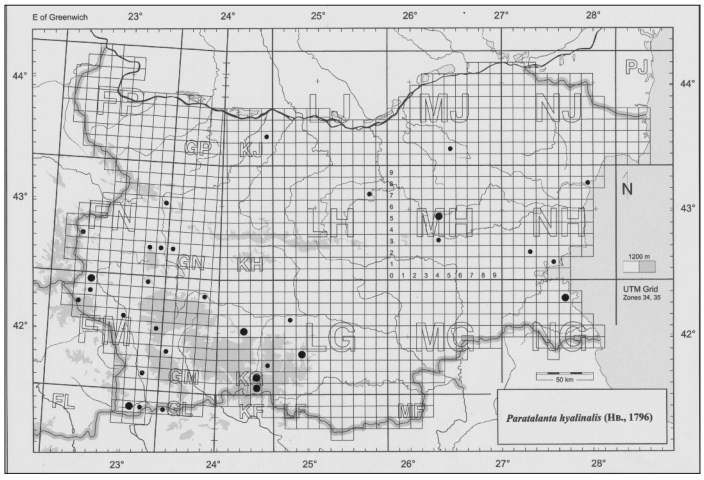
Distribution of *Achyra nudalis* (Hübner, 1796)



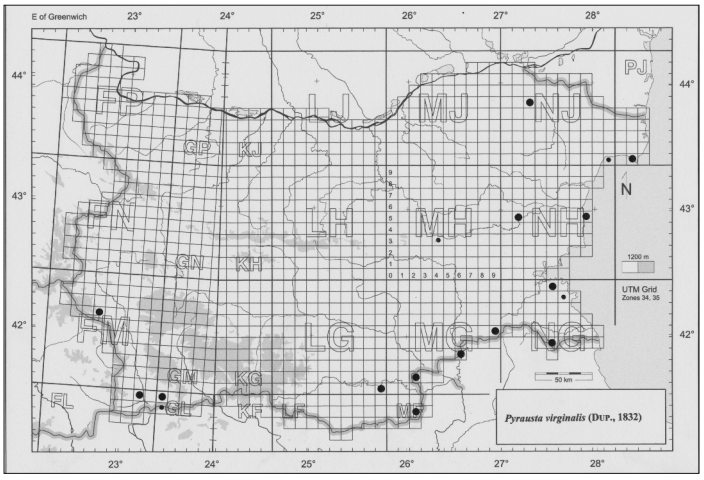
Distribution of *Paracorsia repandalis* ([Denis & Schiffermüller], 1775)



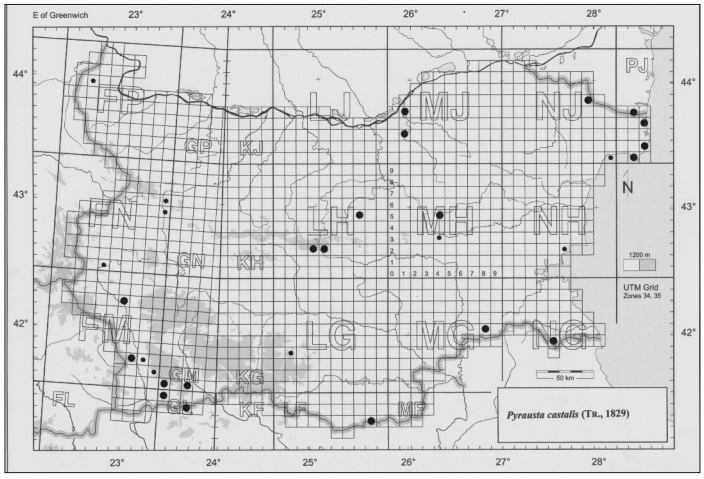
Distribution of *Paratalanta pandalis* (Hübner, 1825)



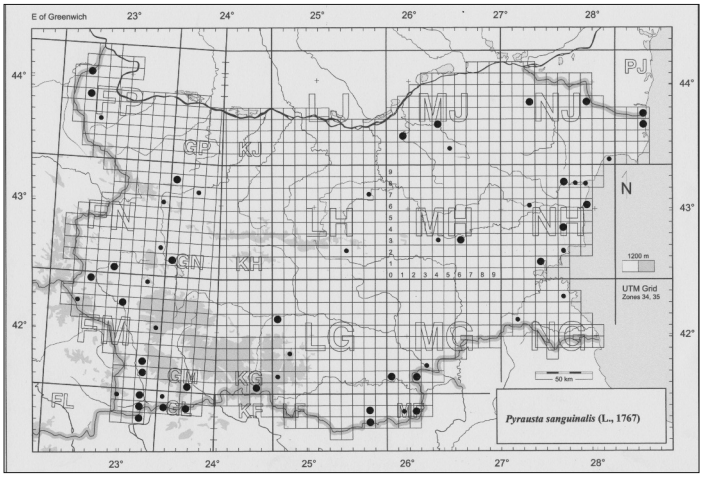
Distribution of *Paratalanta hyalinalis* (Hübner, 1796)



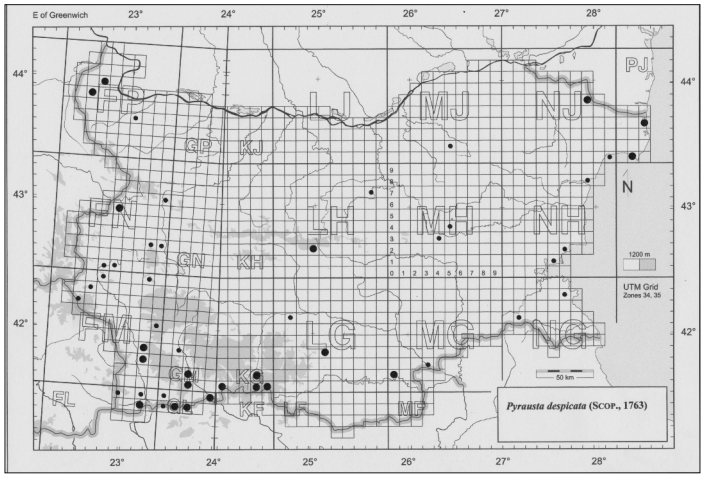
Distribution of *Pyrausta virginalis* (Duponchel, 1832)



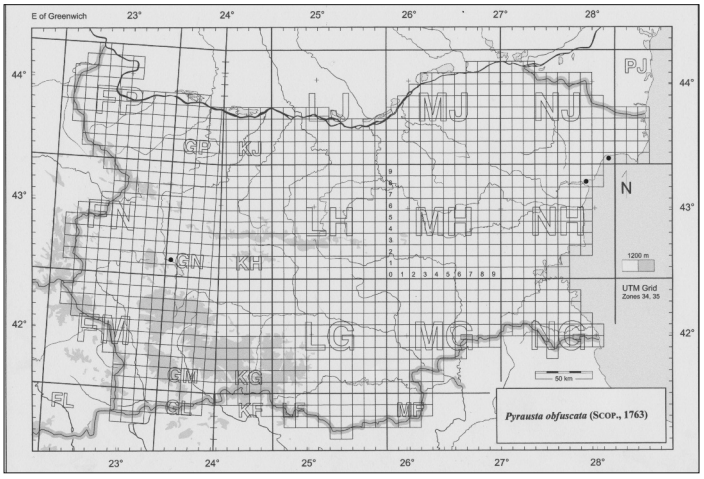
Distribution of *Pyrausta castalis* (Treitschke, 1829)



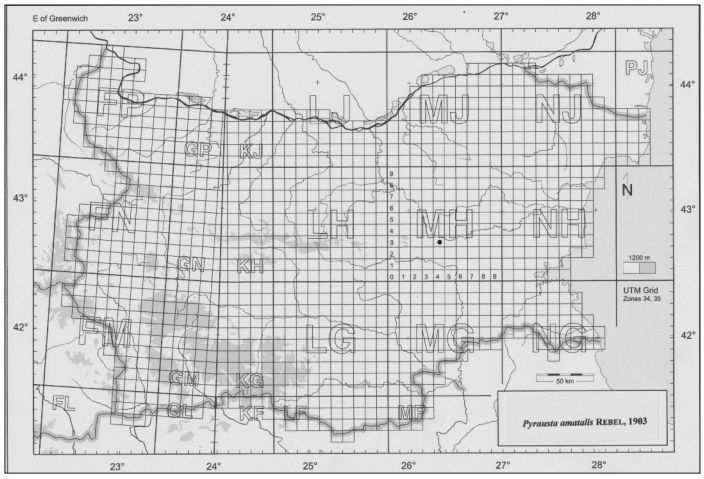
Distribution of *Pyrausta sanguinalis* (Linnaeus, 1767)



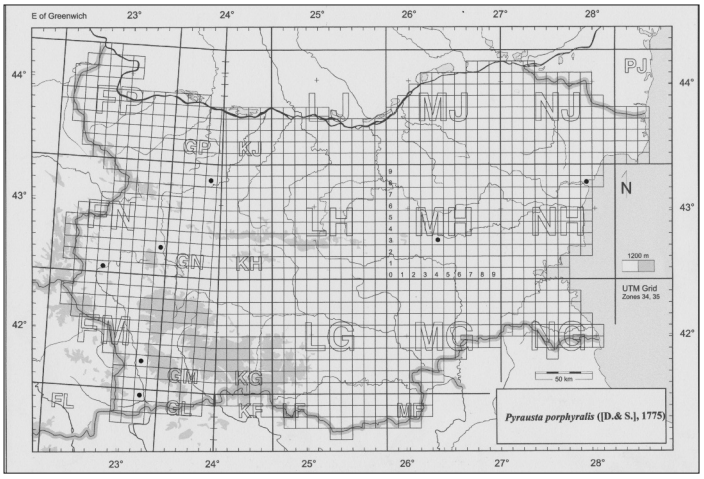
Distribution of *Pyrausta despicata* (Scopoli, 1763)



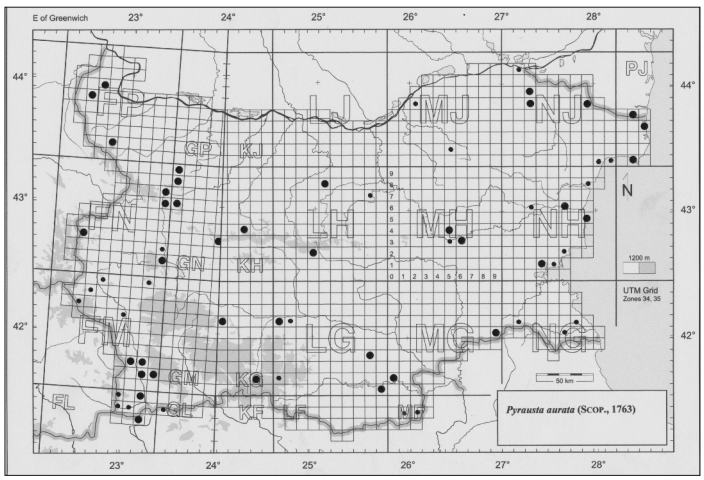
Distribution of *Pyrausta obfuscata* (Scopoli, 1763)



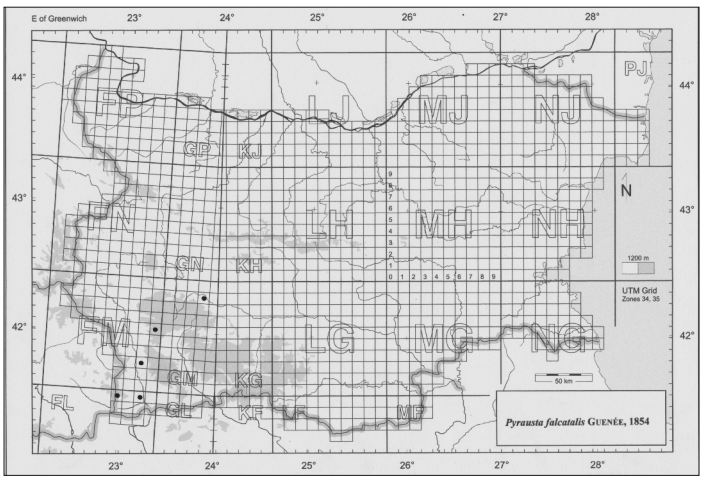
Distribution of *Pyrausta amatalis* REBEL, 1903



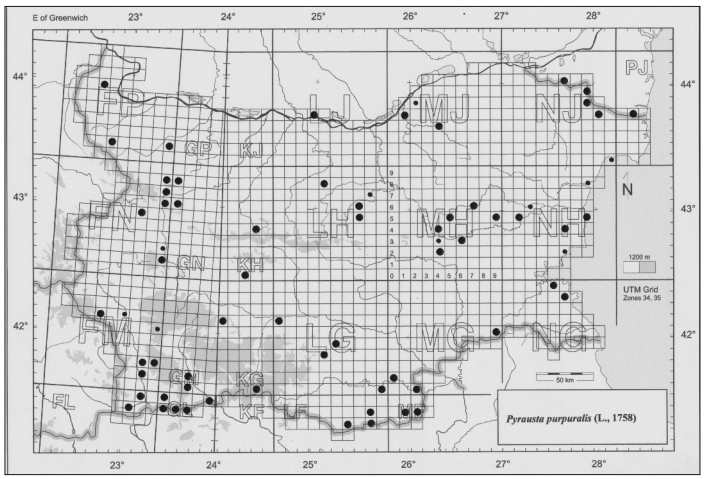
Distribution of *Pyrausta porphyralis* ([DENIS & SCHIFFERMÜLLER], 1775)



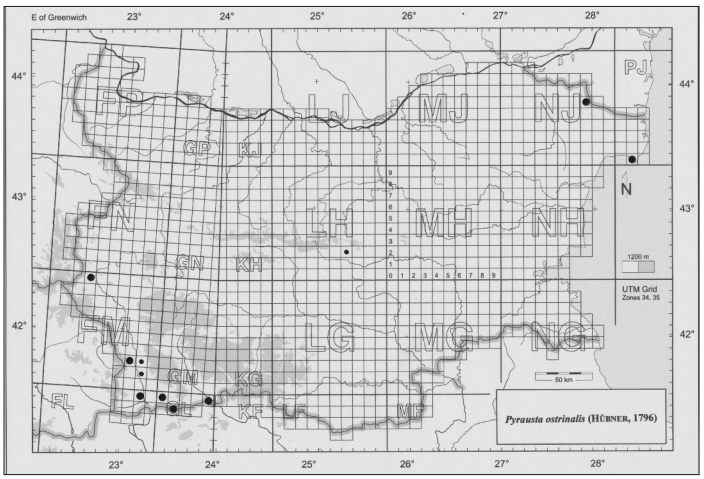
Distribution of *Pyrausta aurata* (SCOPOLI, 1763)



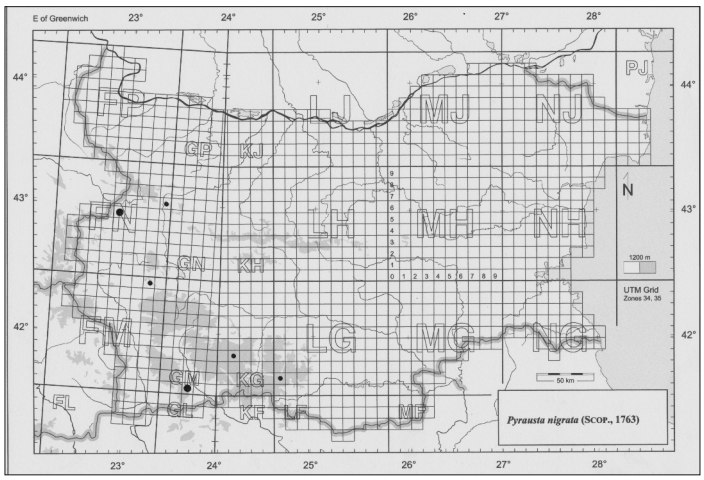
Distribution of *Pyrausta falcatalis* GUENÉE, 1854



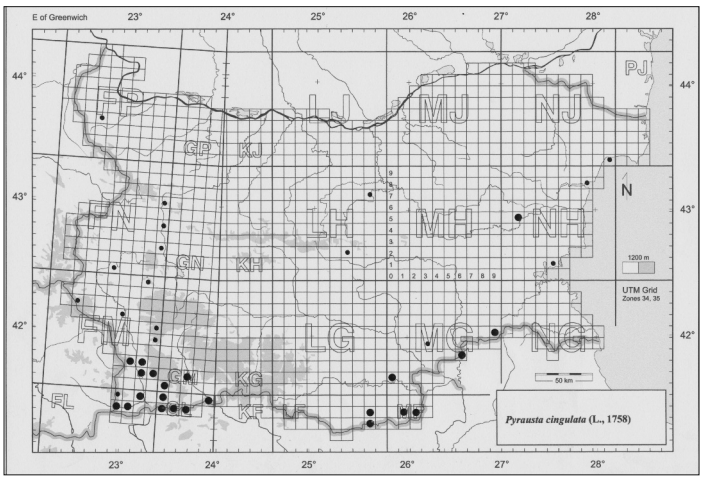
Distribution of *Pyrausta purpuralis* (LINNAEUS, 1758)



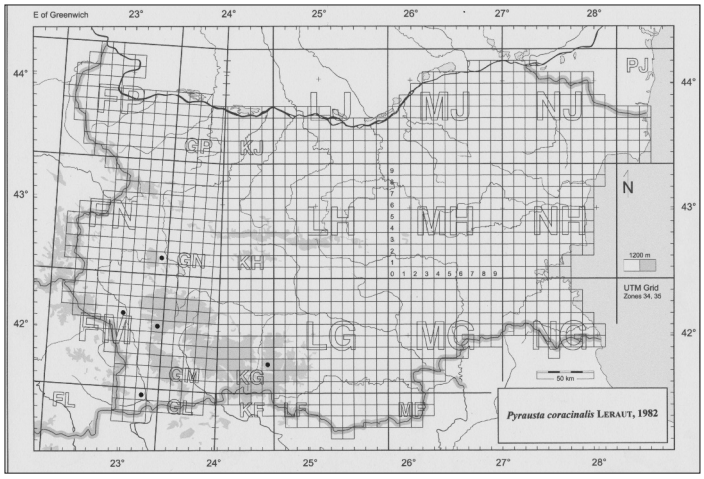
Distribution of *Pyrausta ostrinalis* (HÜBNER, 1796)



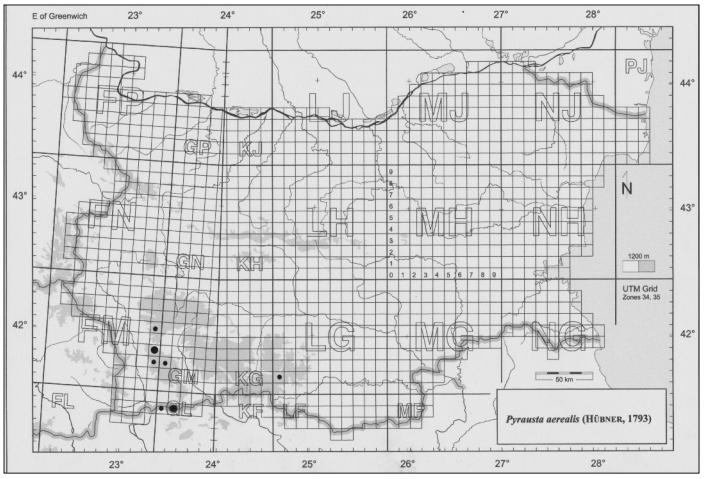
Distribution of *Pyrausta nigrata* (SCOPOLI, 1763)



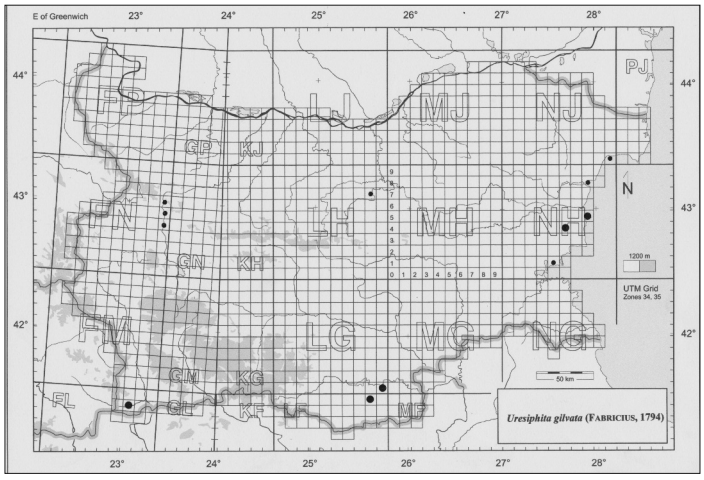
Distribution of *Pyrausta cingulata* (LINNAEUS, 1758)



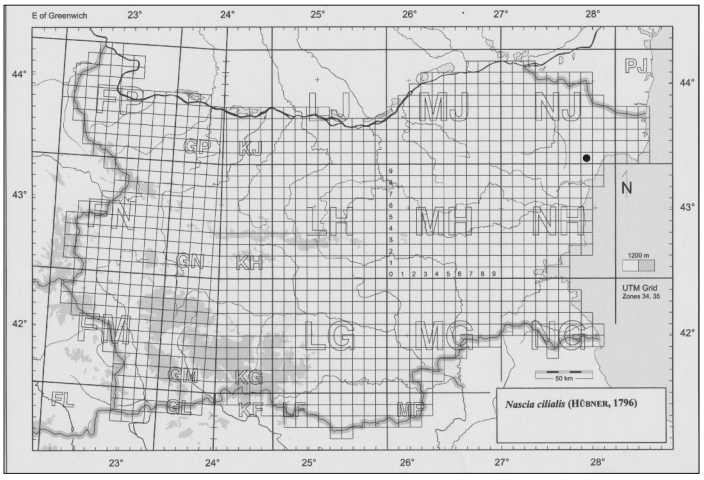
Distribution of *Pyrausta coracinalis* Leraut, 1982



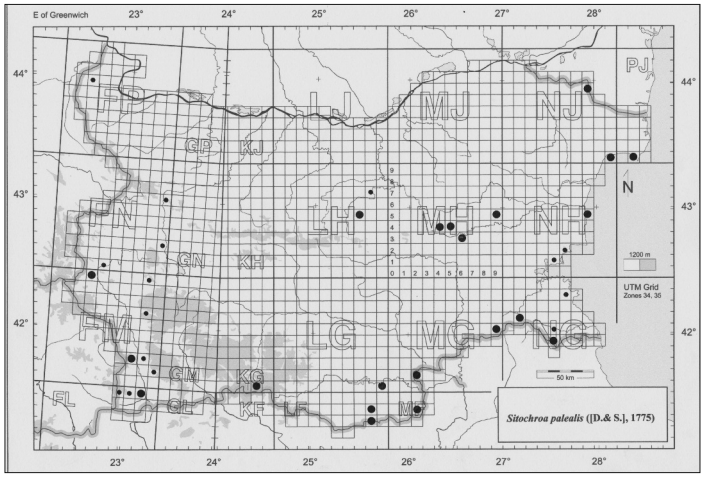
Distribution of *Pyrausta (Panstegia) aerealis* (Hübner, 1793)



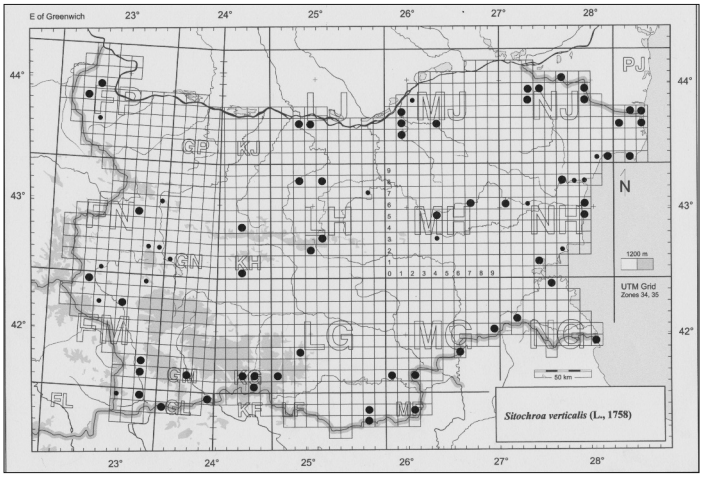
Distribution of *Uresiphita gilvata* (Fabricius, 1794)



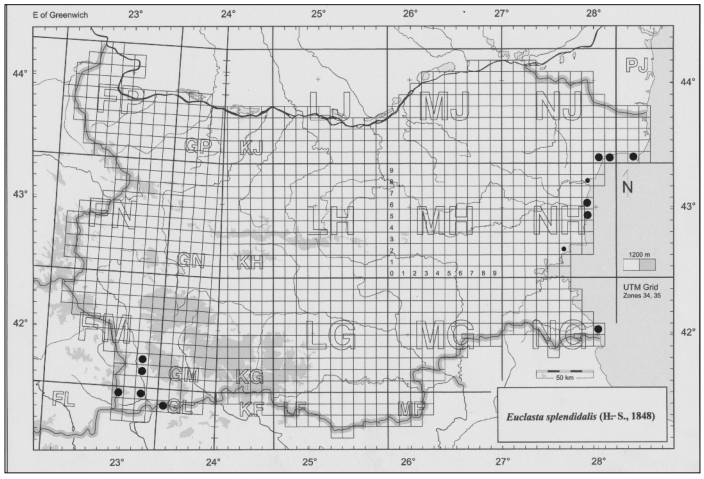
Distribution of *Nascia cilialis* (Hübner, 1796)



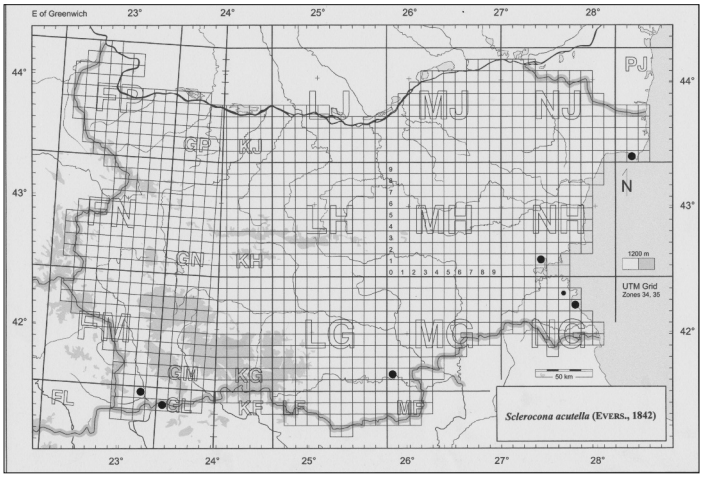
Distribution of *Sitochroa palealis* ([Denis & Schiffermüller], 1775)



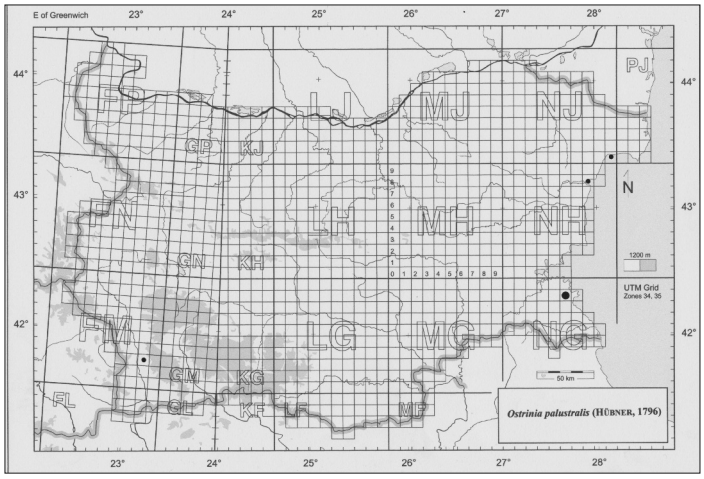
Distribution of *Sitochroa verticalis* (Linnaeus, 1758)



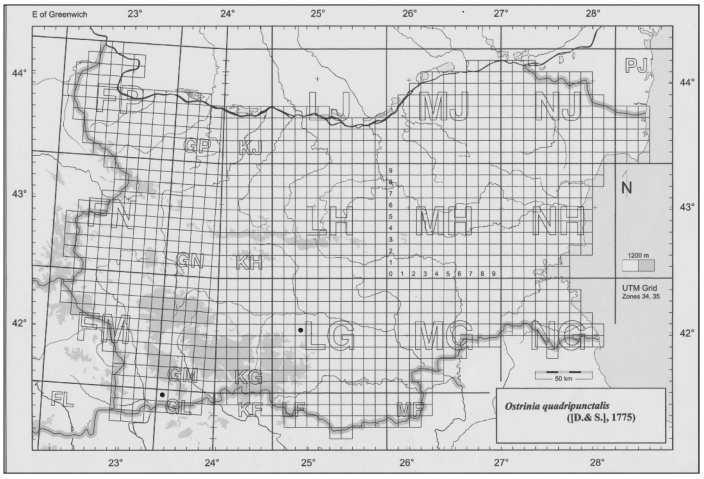
Distribution of *Euclasta splendidalis* (Herrich-Schäffer, 1848)



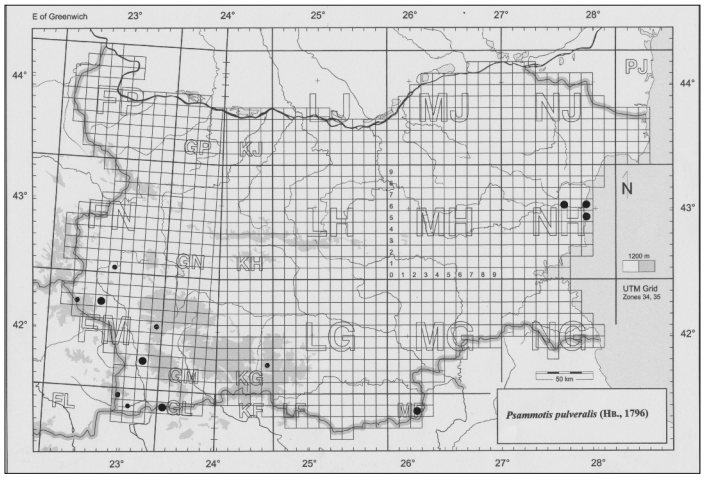
Distribution of *Sclerocona acutella* (Eversmann, 1842)



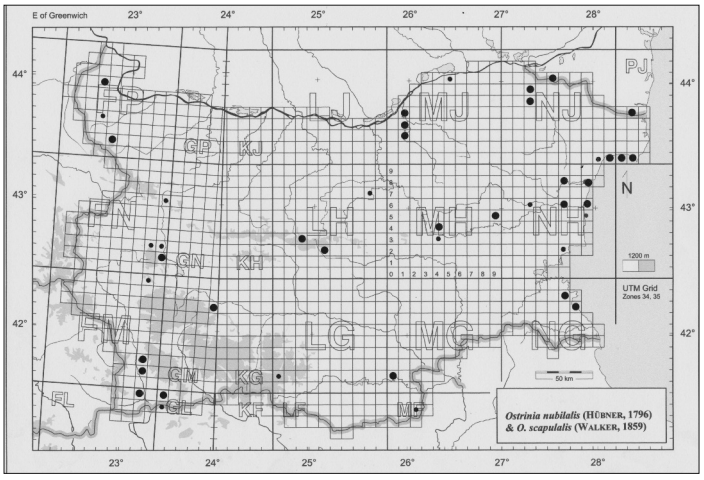
Distribution of *Ostrinia palustralis* (HÜBNER, 1796)



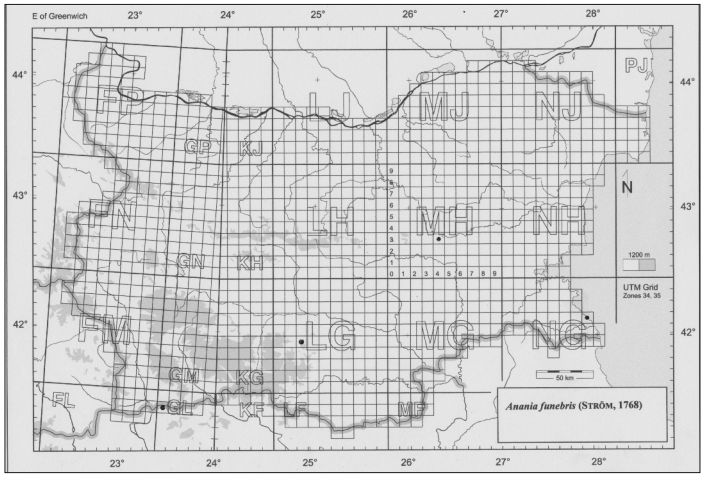
Distribution of *Ostrinia quadripunctalis* ([DENIS & SCHIFFERMÜLLER], 1775)



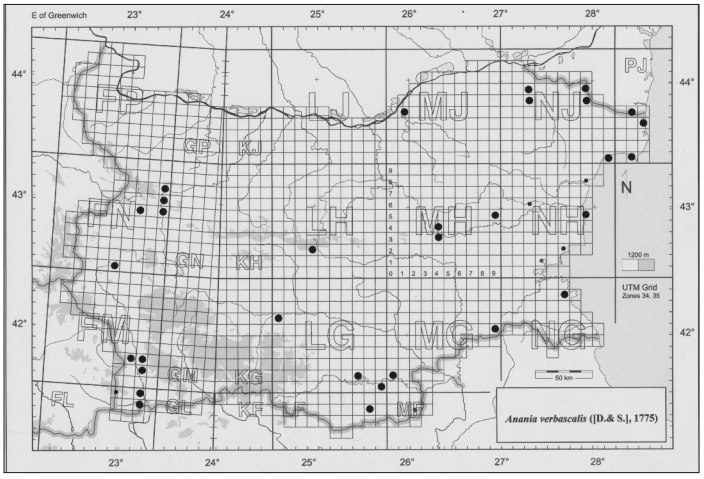
Distribution of *Psammotis pulveralis* (HÜBNER, 1796)



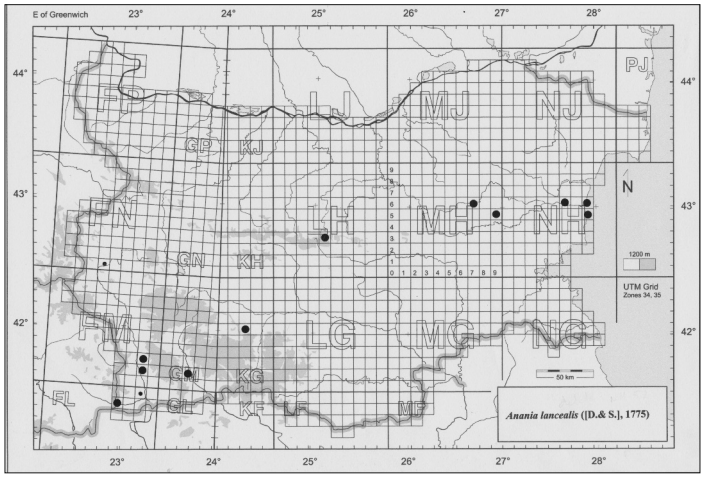
Distribution of *Ostrinia nubilalis* (HÜBNER, 1796) / *O. scapulalis* (WALKER, 1859)



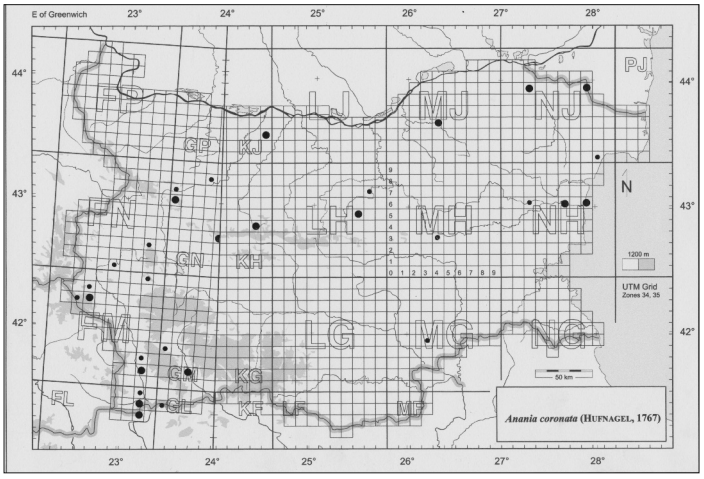
Distribution of *Anania funebris* (STRÖM, 1768)



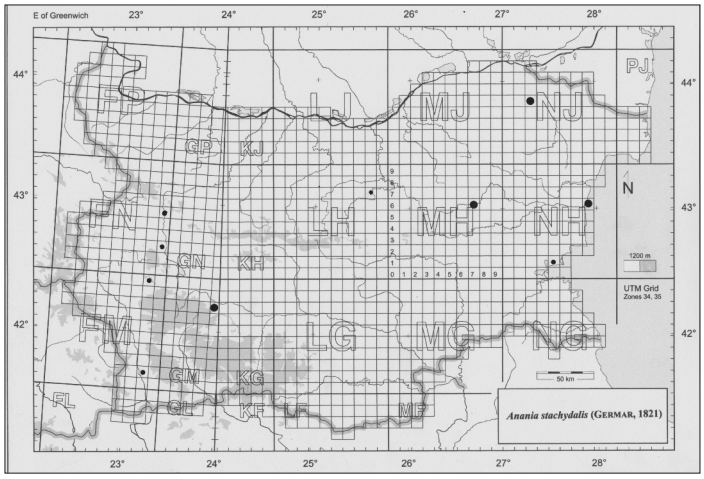
Distribution of *Anania verbascalis* ([DENIS & SCHIFFERMÜLLER], 1775)



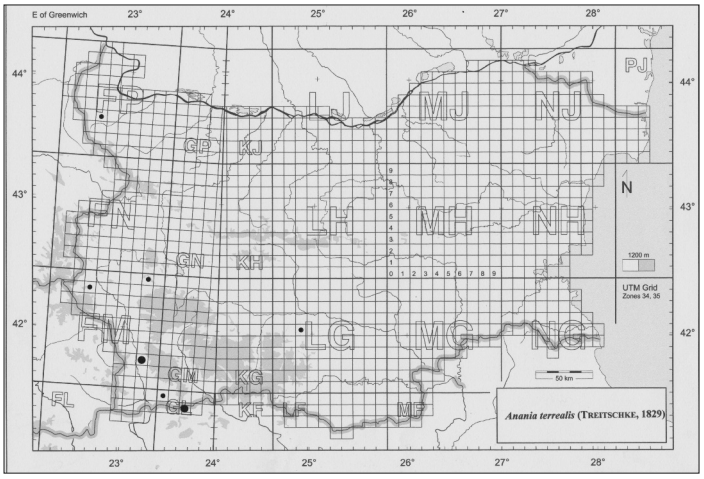
Distribution of *Anania lancealis* ([DENIS & SCHIFFERMÜLLER], 1775)



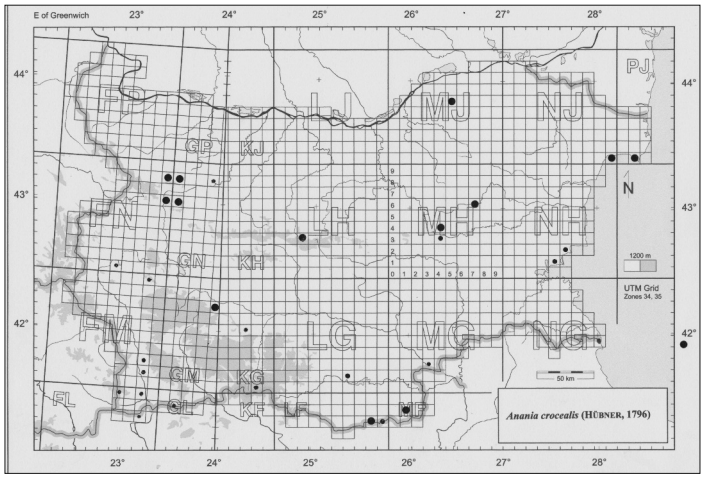
Distribution of *Anania coronata* (HUFNAGEL, 1767)



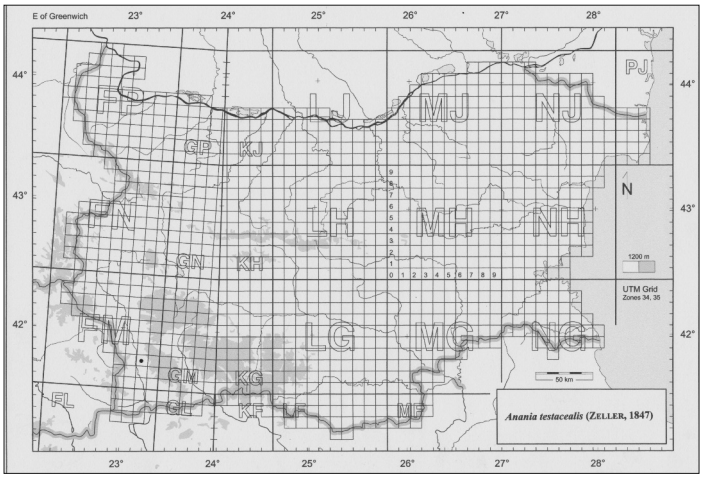
Distribution of *Anania stachydalis* (GERMAR, 1821)



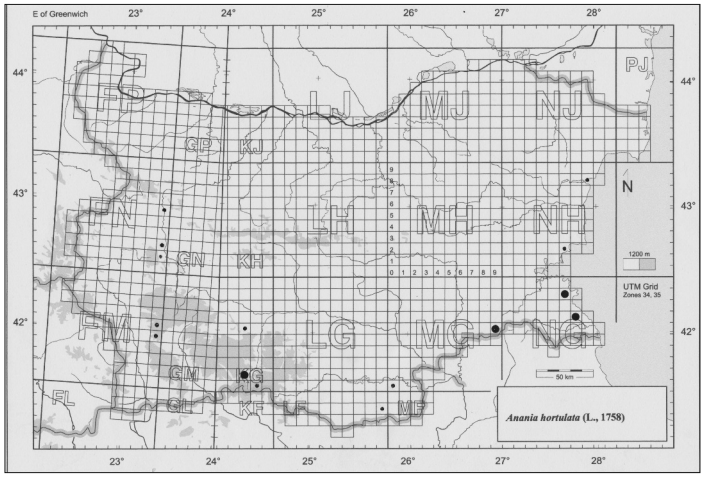
Distribution of *Anania terrealis* (TREITSCHKE, 1829)



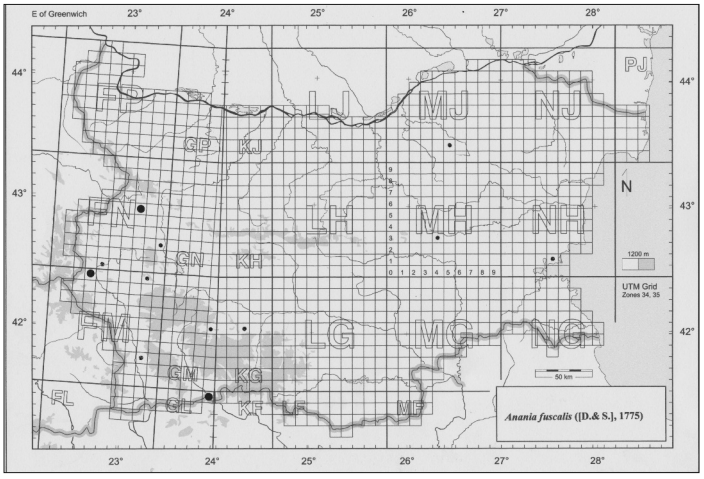
Distribution of *Anania crocealis* (HÜBNER, 1796)



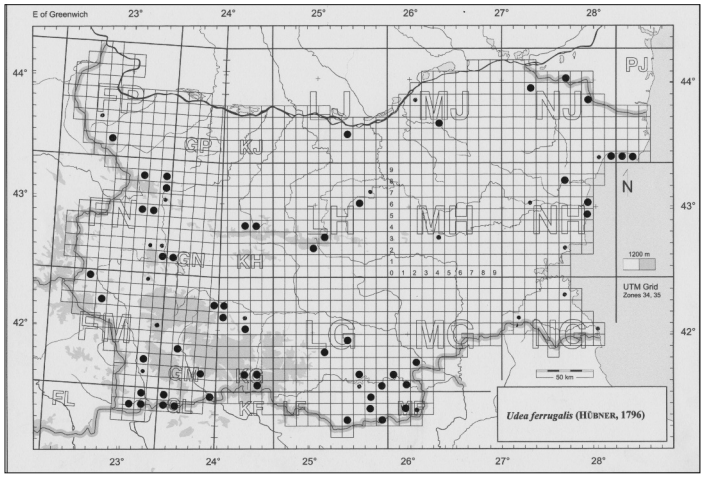
Distribution of *Anania testacealis* (ZELLER, 1847)



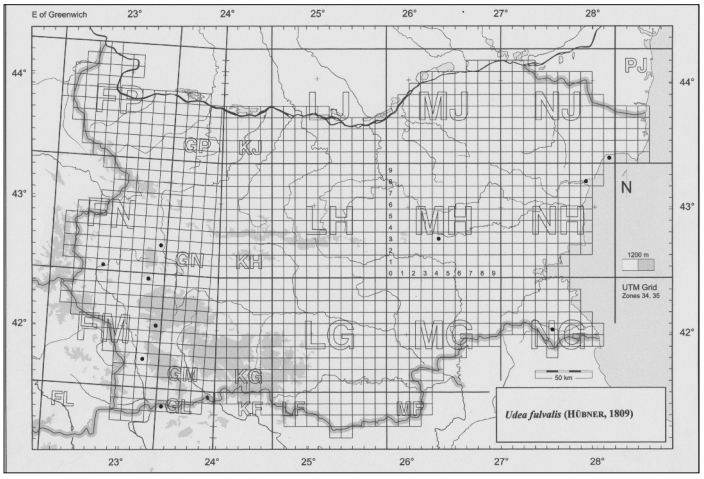
Distribution of *Anania hortulata* (LINNAEUS, 1758)



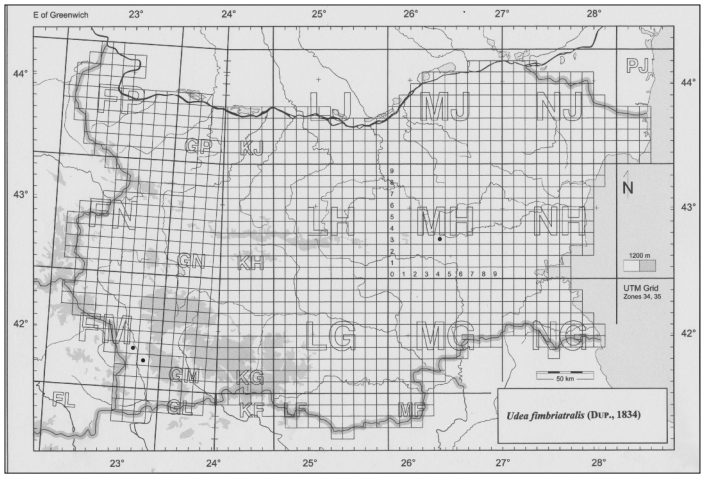
Distribution of *Anania fuscalis* ([DENIS & SCHIFFERMÜLLER], 1775)



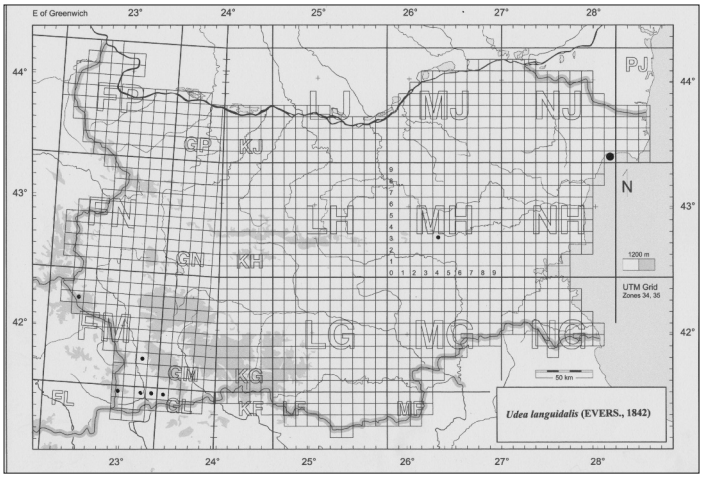
Distribution of *Udea ferrugalis* (HÜBNER, 1796)



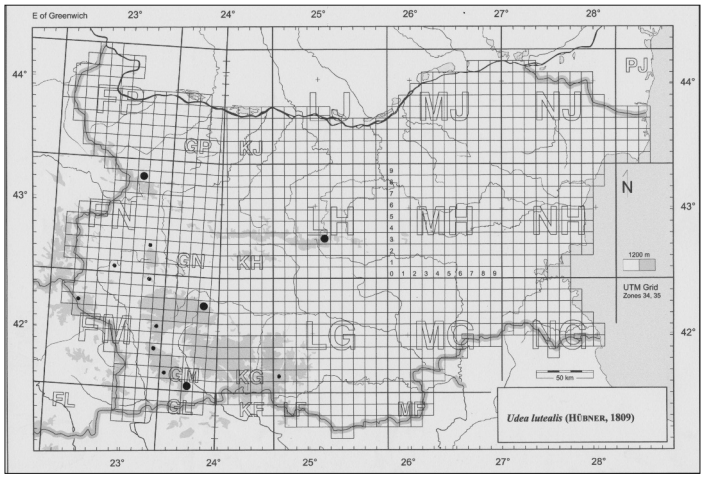
Distribution of *Udea fulvalis* (HÜBNER, 1809)



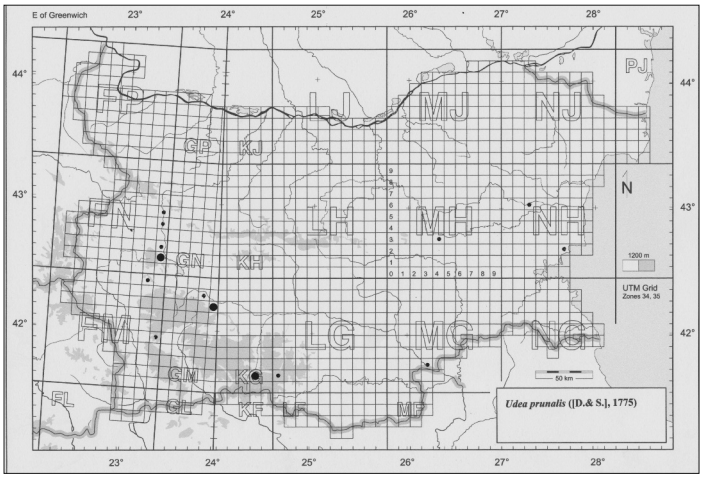
Distribution of *Udea fimbriatralis* (Duponchel, 1834)



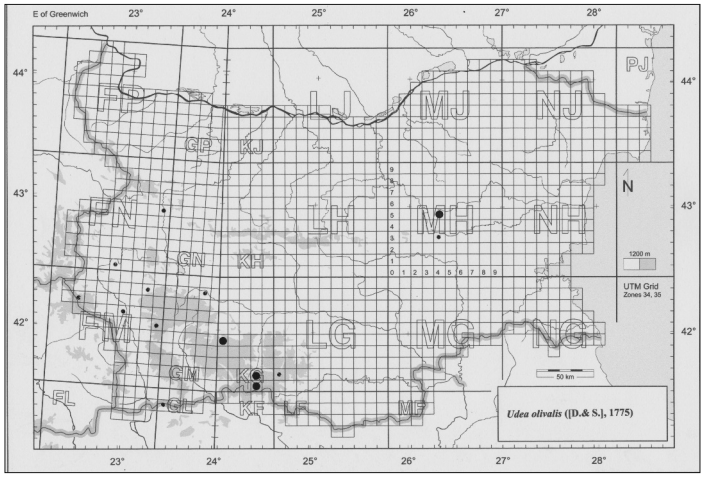
Distribution of *Udea languidalis* (Eversmann, 1842)



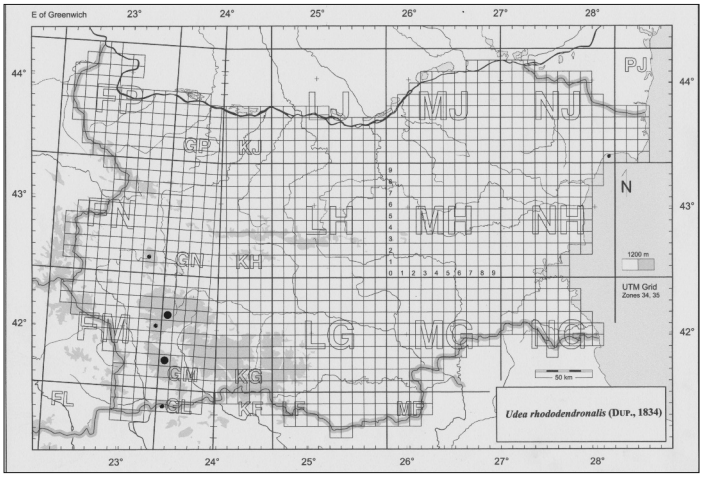
Distribution of *Udea lutealis* (Hübner, 1809)



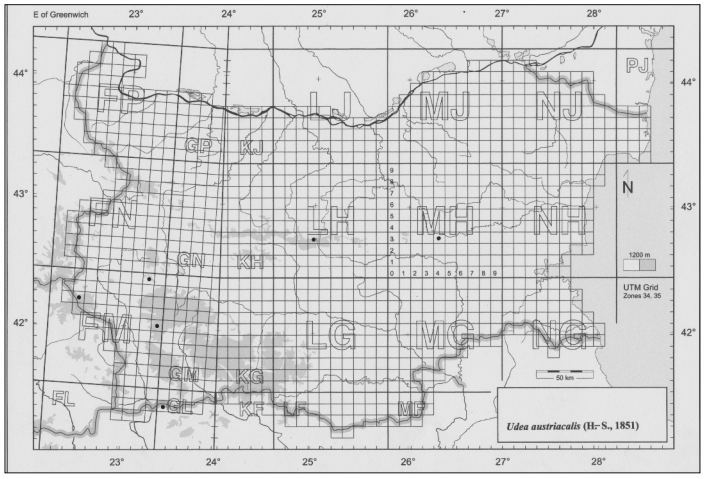
Distribution of *Udea prunalis* ([Denis & Schiffermüller], 1775)



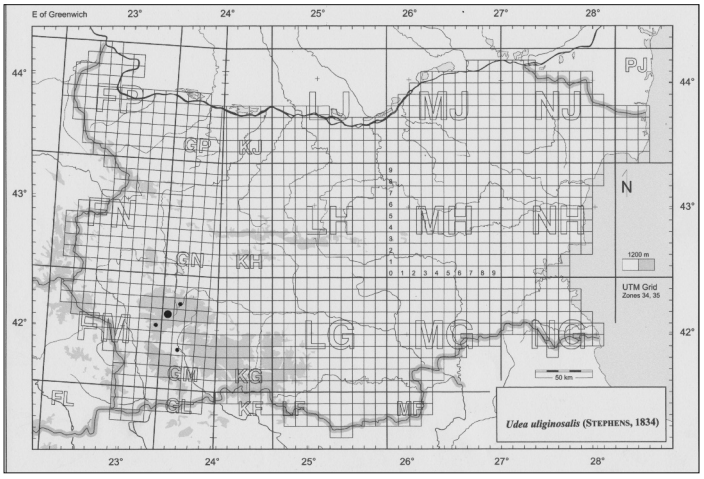
Distribution of *Udea olivalis* ([Denis & Schiffermüller], 1775)



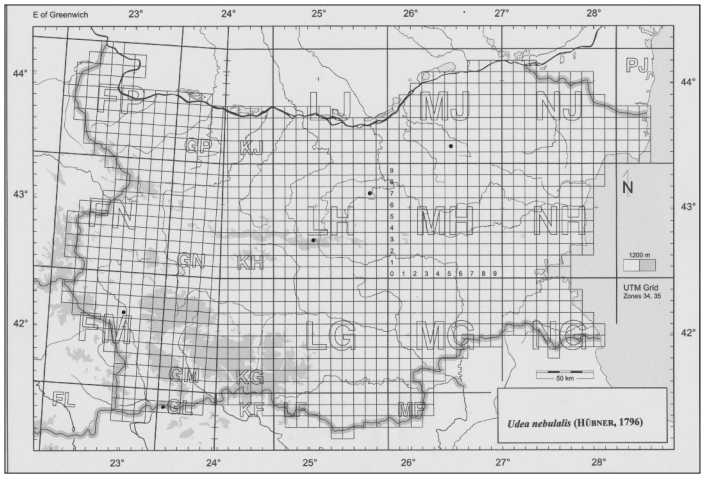
Distribution of *Udea rhododendronalis* (Duponchel, 1834)



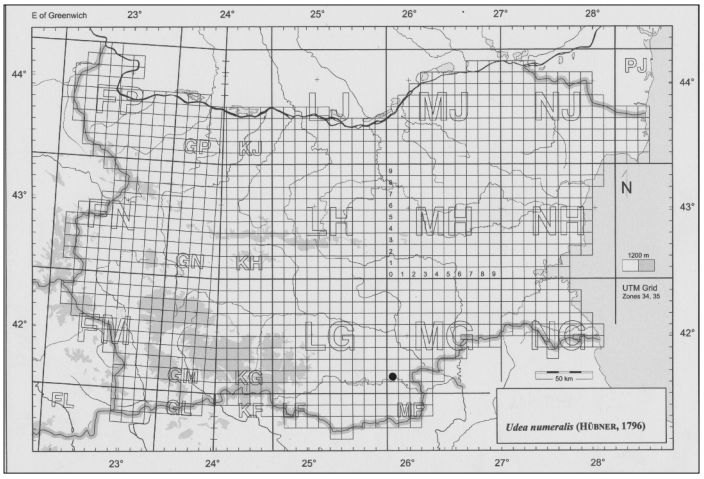
Distribution of *Udea austriacalis* (Herrich-Schäffer, 1851)



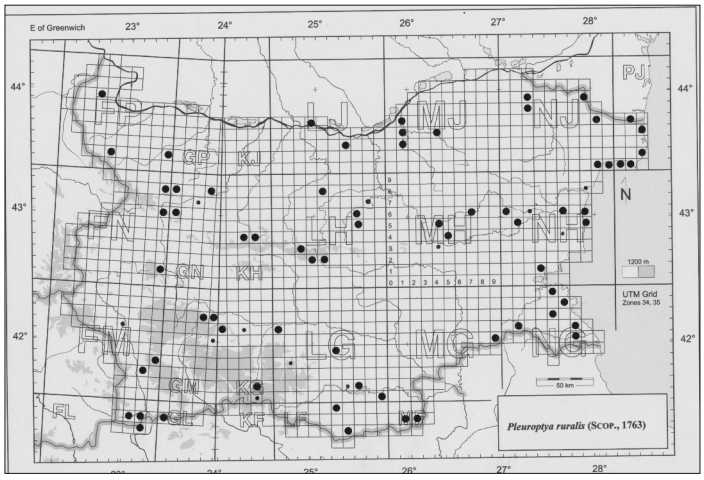
Distribution of *Udea uliginosalis* (Stephens, 1834)



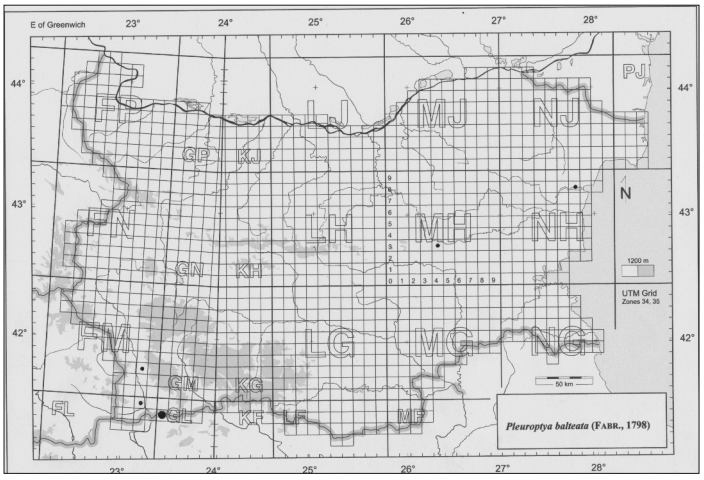
Distribution of *Udea nebulalis* (HÜBNER, 1796)



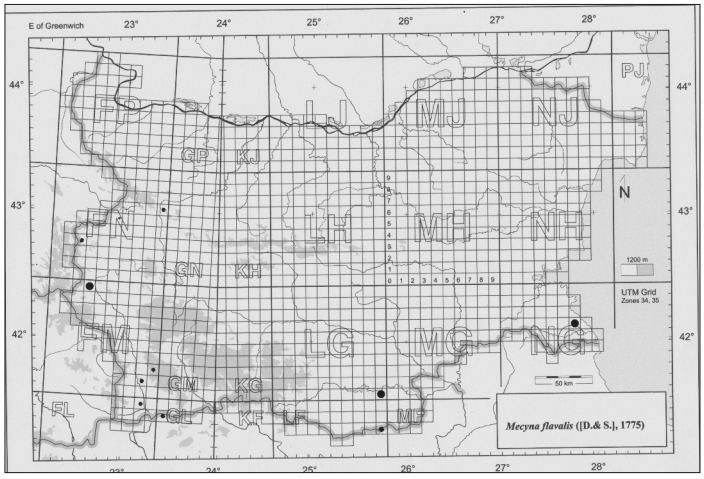
Distribution of *Udea numeralis* (HÜBNER, 1796)



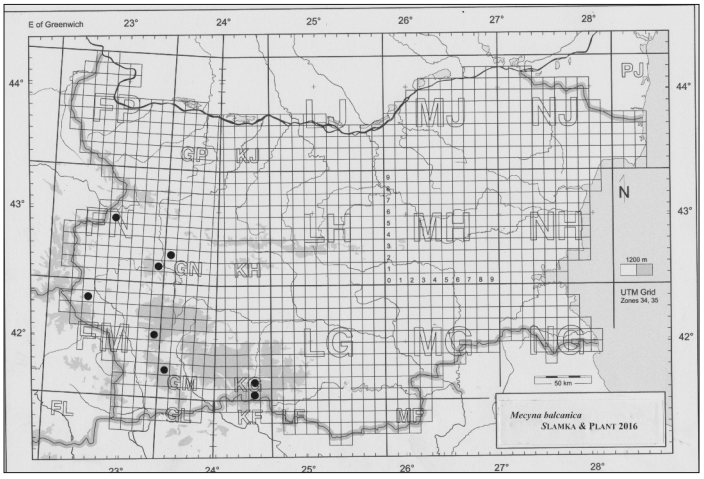
Distribution of *Pleuroptya ruralis* (SCOPOLI, 1763)



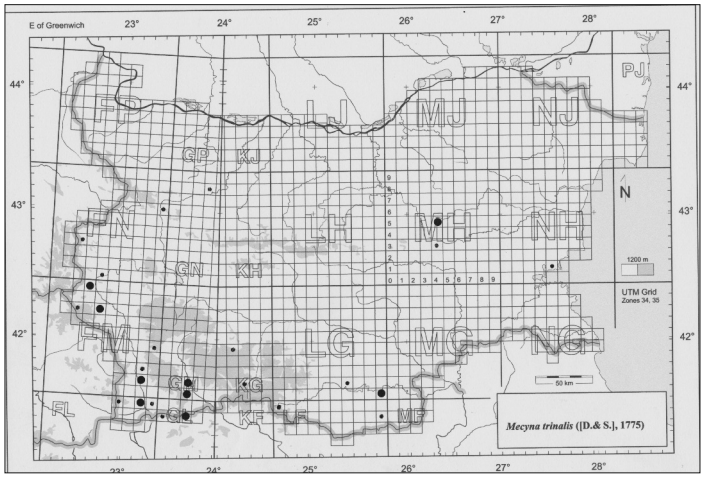
Distribution of *Pleuroptya balteata* (FABRICIUS, 1798)



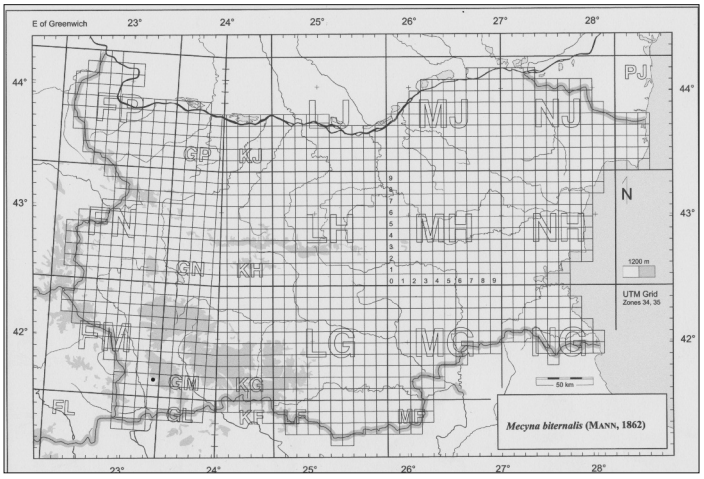
Distribution of *Mecyna flavalis* ([DENIS & SCHIFFERMÜLLER], 1775)



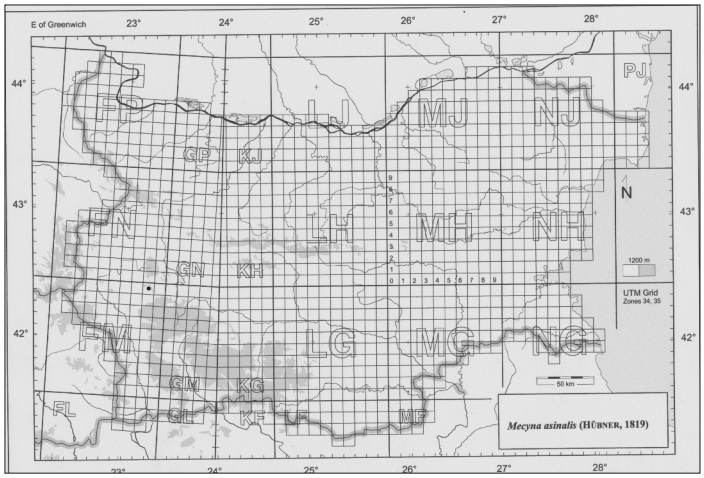
Distribution of *Mecyna balcanica* Slamka & Plant 2016



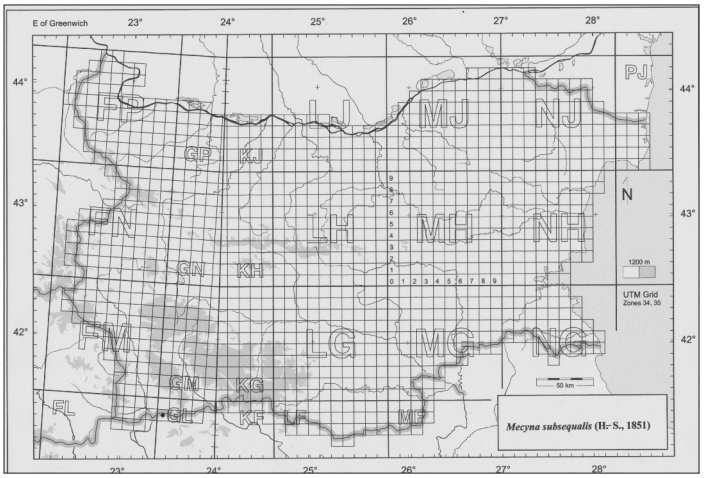
Distribution of *Mecyna trinalis* ([DENIS & SCHIFFERMÜLLER], 1775)



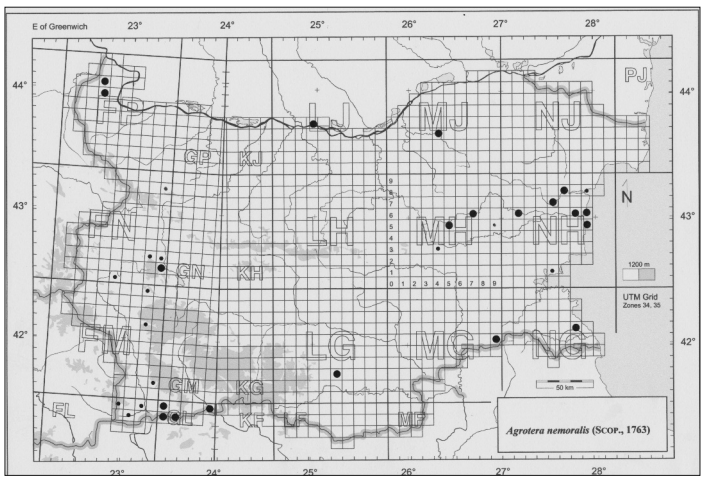
Distribution of *Mecyna biternalis* (MANN, 1862)



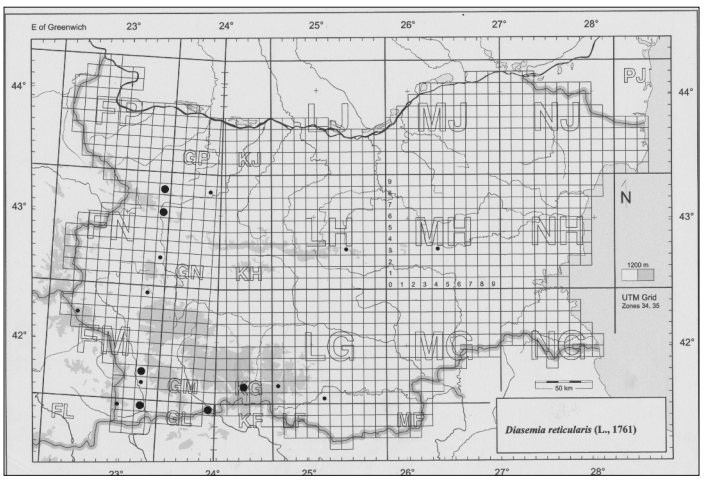
Distribution of *Mecyna asinalis* (HÜBNER, 1819)



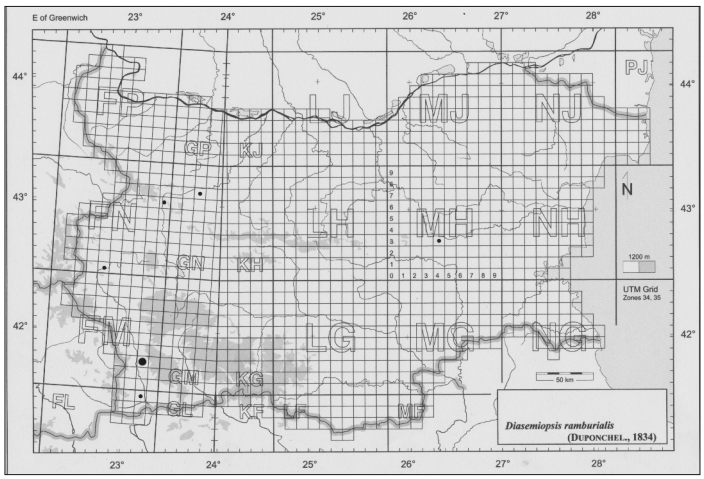
Distribution of *Mecyna subsequalis* (HERRICH-SCHÄFFER, 1851)



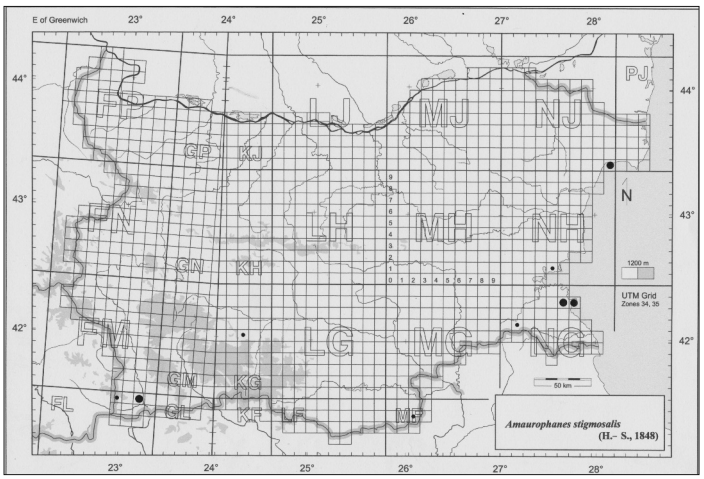
Distribution of *Agrotera nemoralis* (SCOPOLI, 1763)



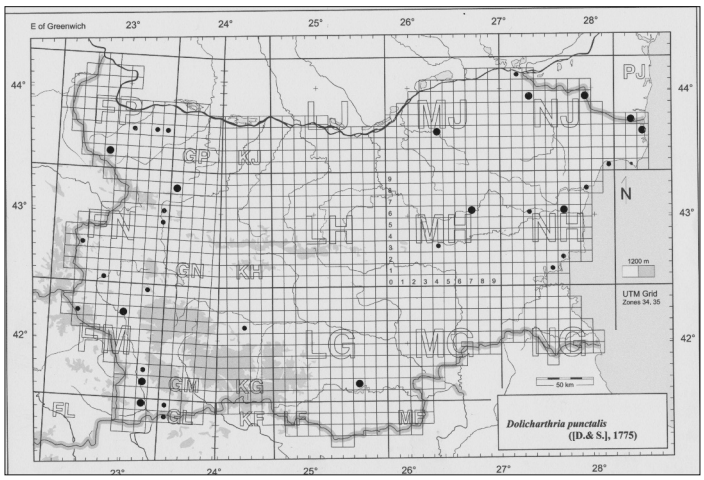
Distribution of *Diasemia reticularis* (LINNAEUS, 1761)



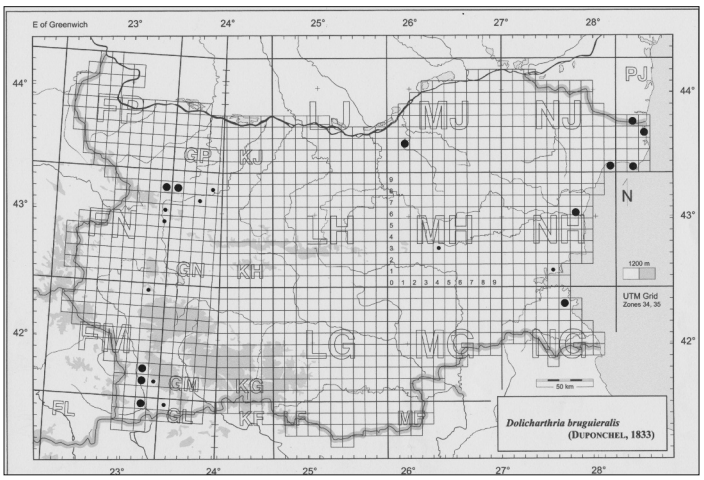
Distribution of *Diasemiopsis ramburialis* (DUPONCHEL, 1834)



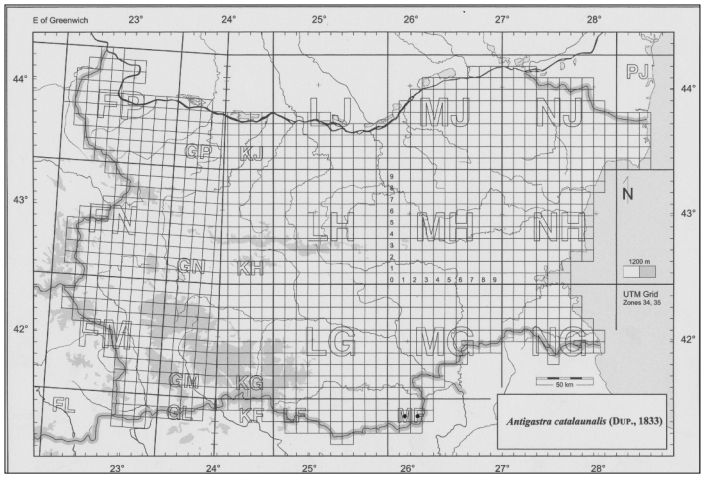
Distribution of *Amaurophanes stigmosalis* (HERRICH-SCHÄFFER, 1848)



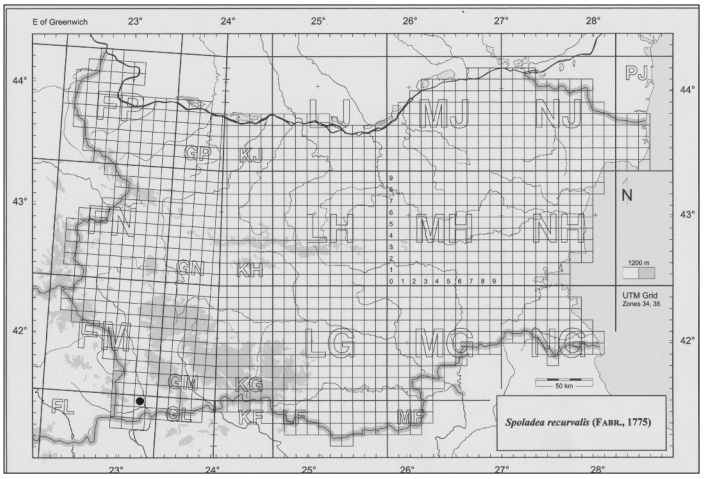
Distribution of *Dolicharthria punctalis* ([DENIS & SCHIFFERMÜLLER], 1775)



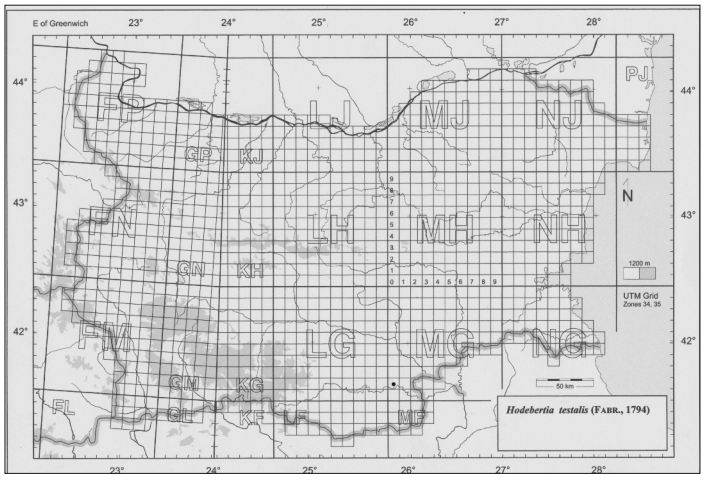
Distribution of *Dolicharthria bruguieralis* (DUPONCHEL, 1833)



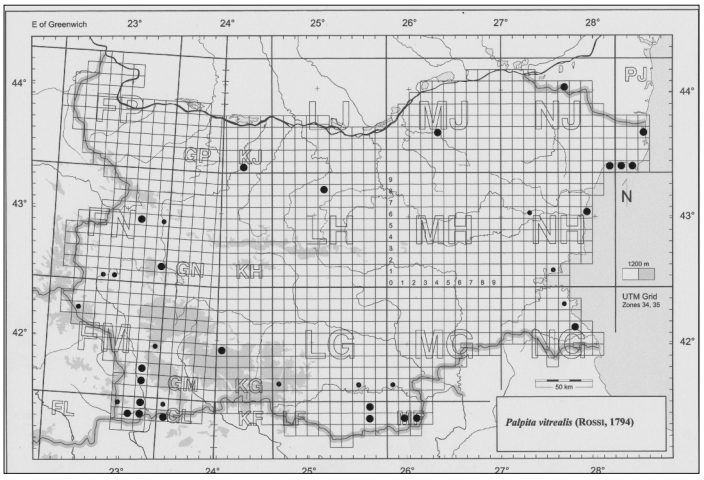
Distribution of *Antigastra catalaunalis* (Duponchel, 1833)



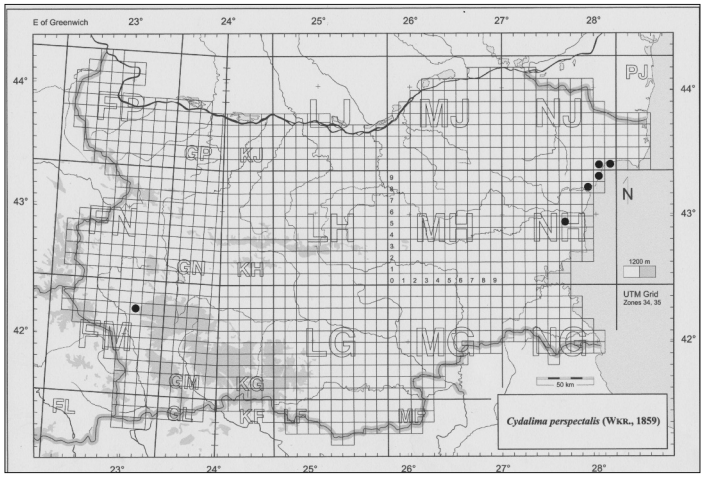
Distribution of *Spoladea recurvalis* (Fabricius, 1775)



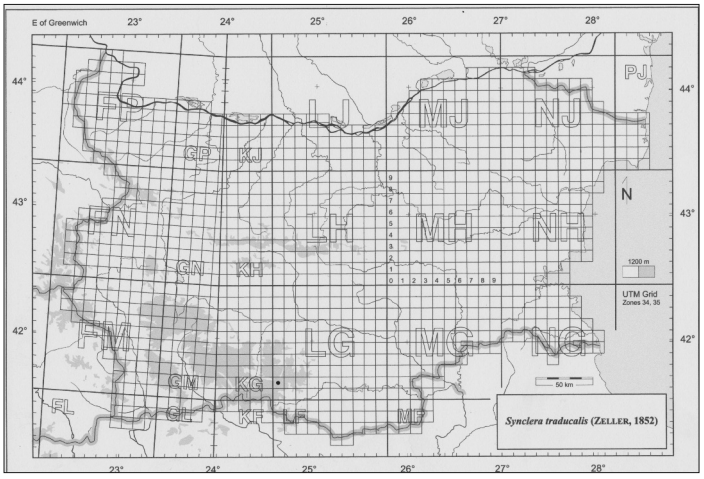
Distribution of *Hodebertia testalis* (Fabricius, 1794)



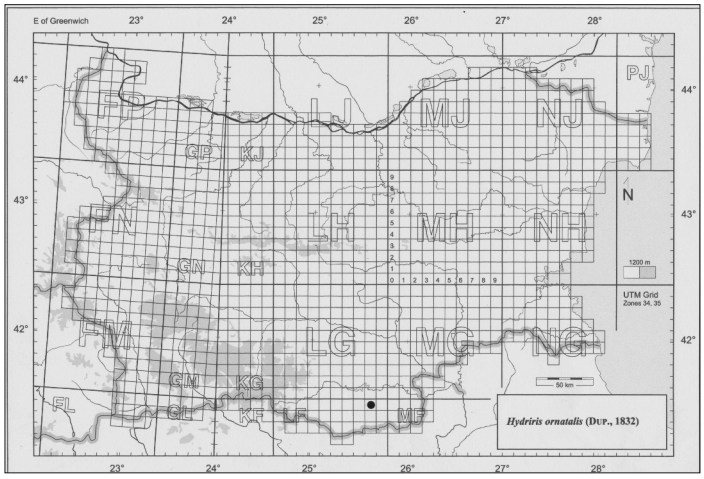
Distribution of *Palpita vitrealis* (Rossi, 1794)



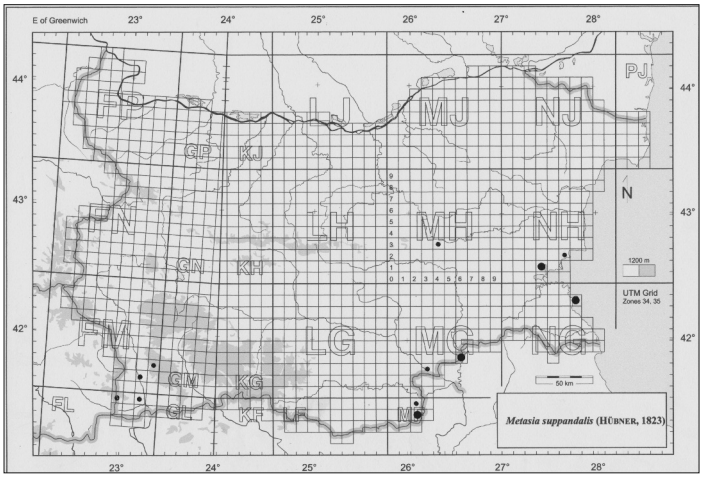
Distribution of *Cydalima perspectalis* (Walker, 1859)



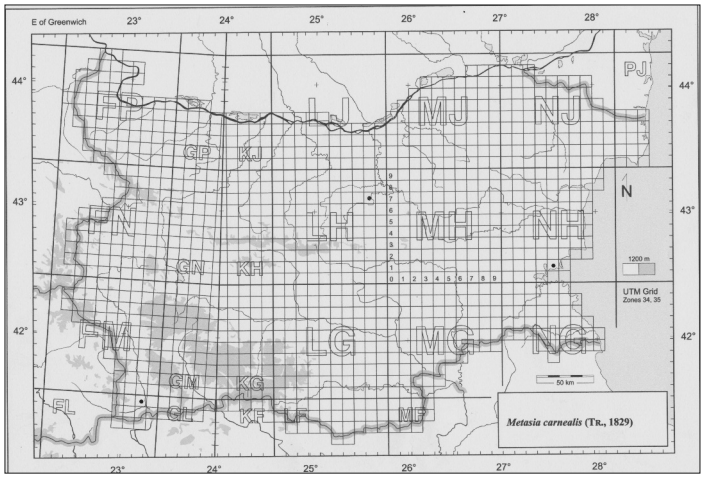
Distribution of *Synclera traducalis* (Zeller, 1852)



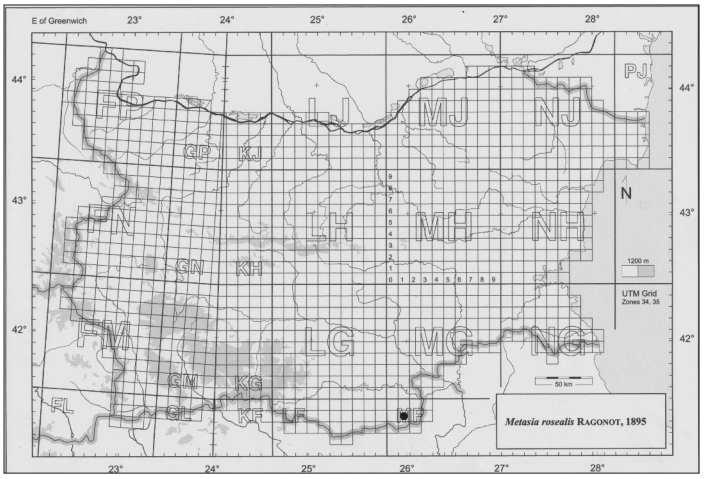
Distribution of *Hydriris ornatalis* (Duponchel, 1832)



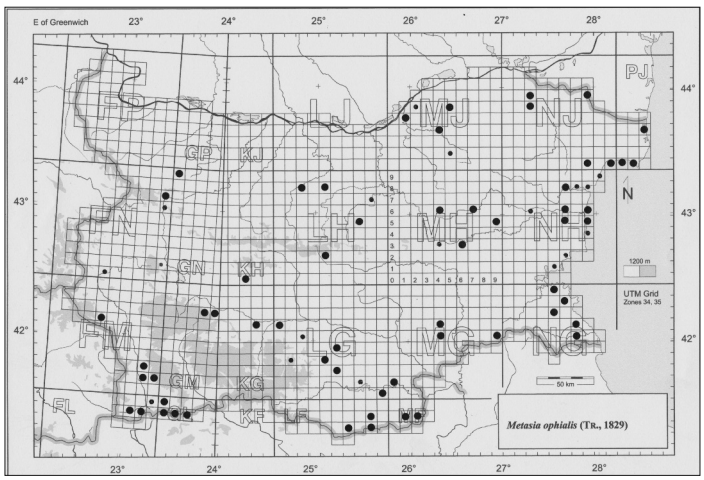
Distribution of *Metasia suppandalis* (Hübner, 1823)



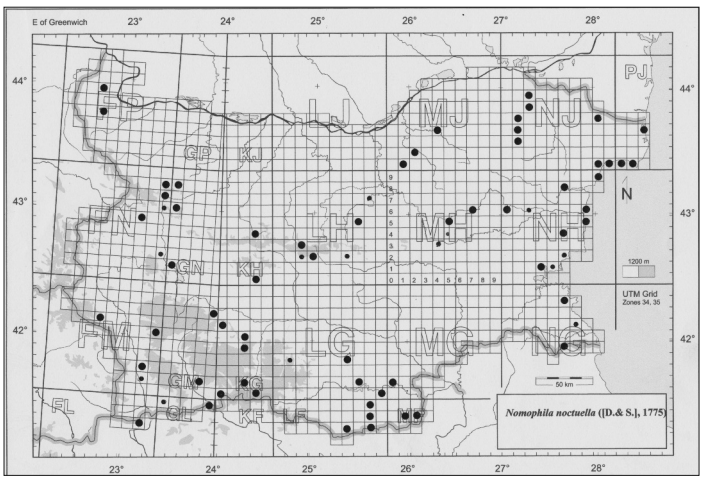
Distribution of *Metasia (Metasia) carnealis* (Treitschke, 1829)



Distribution of *Metasia (Metasia) rosealis* Ragonot, 1895



Distribution of *Metasia (Clasperia) ophialis* (Treitschke, 1829)



Distribution of *Nomophila noctuella* ([Denis & Schiffermüller], 1775)

LEPIDOPTERA HABITATS

The physical geography of Bulgaria combine with the major climatic influences discussed above to create four major biotope regions – Alpine, Mediterranean, Maritime and Steppic. A complete review of the Pyraloidea species specifically supported by each of these would be premature; in the future it is hoped that a significantly greater amount of data will be available to permit a meaningful analysis of the habitats and their overall contribution to moth conservation. Nevertheless, it is already apparent from extensive studies of other faunal groups, as well as of the flora, that the conservation value of some areas are of the country are potentially significant at the European level. Prime amongst these must be the Kresna Gorge in the south-west area, formerly included in the boundary of Macedonia. Situated between the Pirin Mountains and present-day Macedonia, the gorge itself was carved by the Struma River, over the millennia, through the granite, crystalline schist and gneiss geology. In the general area of the Kresna gorge, the Continental and Alpine influences combine with the Mediterranean climate of Greece to the south to create a "biodiversity hotspot" that is of profound international importance for a huge range of both animal and plant groups. In the vicinity of the village of Gorna Breznitsa, for example, may be found more resident reptile species than are present in the entire of Central Europe and it is estimated that in the order of 56,000 taxa of plants and animals affect the Kresna Gorge area as a whole (Beron, 2001). There are 120 known butterfly species resident here and at year 2001 there were 822 species of macro moths (Beshkov, 2001); other than this present work, which notes 167 species of Crambidae and Pyralidae – itself an outstanding total representing nearly 44% of the national pyraloid fauna - the micro moths of Kresna are largely unreported. At the time of writing, in March 2016, it is threatened by construction of a motorway!

Of course, this is not the only site of high conservation value in Bulgaria. A brief pictorial review of some of the more interesting or diverse sites and habitats for Pyralidae and Crambidae is now presented, primarily to place on permanent record the condition of some key localities at 2016 so that the images may be compared with others yet to be obtained in the future. There is no system or methodology in the presentation of these images and no greater significance should be conferred an any particular site by virtue of its position in the list.

PHOTOGRAPHS OF PYRALOID MOTH SITES OF INTEREST IN BULGARIA

Plate 15: The Pirin Mountains and other hills above the Kresna Gorge. Here the Continental, Alpine and Mediterranean aspects of the climate combine to create possibly the most ecologically important area of Bulgaria … it is presently under threat of development as a motorway corridor.

Plate 16: The Struma is one of several major rivers that contribute to the lepidopteran biodiversity of Bulgaria. This image shows the river near Kresna village in the south-western region. (Photo credit: Colin W. PLANT).

Plate 17: The radio mast at Orelyak is at around 1900 m. above sea level; the grassland habitat here is extremely herb-rich and supports an enormous biodiversity of Lepidoptera. (Photo credit: Colin W. PLANT).

Plate 18: The Rila Mountains present a range of montane habitats that in turn support an immensely diverse moth fauna.
(Photo credit: Colin W. PLANT).

Plate 19: Alpine meadows in the Rila Mountains provide a diverse flower resource for high altitude Lepidoptera.
(Photo credit: S. BESHKOV).

Plate 20: The different mountain ranges present subtly different habitats; this picture shows a sub-alpine meadow in the Slavyanka Mountains. (Photo credit: S. BESHKOV).

Plate 21: Montane habitat in the Central Stara Planina. (Photo credit: S. BESHKOV).

Plate 22: Sub-alpine meadows in the Rila Mountains. (Photo credit: B. ZLATKOV).

Plate 23: The "Devil's Throat" at Trigrad, in the Western Rhodopes near the Greek border also supports many rare species. (Photo credit: C. W. PLANT).

Plate 24: The volcanic hill known as Kozhuh, near Petrich in the far south-west, has an enormously rich lepidopteran fauna. (Photo credit: S. BESHKOV).

Plate 25: The open-scrub landscape straddling the border of Bulgaria with Turkey near Matochina, in the south-east, is extensive and largely undisturbed. (Photo credit: C. W. PLANT).

Plate 26: The low, rolling Strandzha Mountains are dominated by unbroken forest and facilitate significant diversity within the lepidopteran fauna. (Photo credit: C. W. PLANT).

Plate 27: Coastal landslips and under cliffs, such as this near Balchik, contribute to a succession of habitats that allows for the development of a flora dominated by ruderal herbs, many of which are the larval foodplants of pyraloid moths. (Photo credit: C. W. PLANT).

Plate 28: Coastal sand dunes provide a diverse flora that supports a range of moth species including many Pyraloidea. In places, damp woodland develops to the rear of the dunes, as here, providing a wet woodland habitat that greatly increases moth diversity.
(Photo credit: Colin W. PLANT).

Plate 29: Dry, steppic grassland at Cape Kaliakra is an enormously diverse habitat that supports a range of pyraloid species.
(Photo credit: C. W. PLANT).

Plate 30: Regrettably, the steppe has been very much degraded by the construction of the extensive wind farm, but still provides important habitat for members of the Pyraustinae in particular. (Photo credit: C. W. PLANT).

Plate 31: Coastal cliffs, landslips and steppic grassland combine to make the northern section of the Bulgarian coast a major biodiversity hotspot of European-level significance. Pyraloid moths are an important component of this invertebrate biodiversity. (Photo credit: C. W. PLANT).

Plate 32: The relative inaccessibility of coastal habitats, such as here near Svet Nicola, mean that the fauna is more or less undisturbed. (Photo credit: C. W. PLANT).

Plate 33. Dry, steep and sparsely-vegetated "xero-montane" habitat such as this at Slavyanka Mountain supports members of the Pyralinae in particular. (Photo credit: B. ZLATKOV).

Plate 34: Extensive areas of “limestone pavement” are found in many areas, such as here near the standing stones of Pobiti Kamani. (Photo credit: C. W. PLANT).

Plate 35: Wetland habitats are relatively scarce, but where they persist may be extensive such as this wet reed bed at Durankulak. (Photo credit: C. W. PLANT).

Plate 36: Marshland also persists at raised altitudes, such as here at Dragoman Marsh, under the shadow of the Chepan Ridge in the background. (Photo credit: B. ZLATKOV).

Plate 37: Another view of the Dragoman Marsh. (Photo credit: S. BESHKOV).

SPECIES PHOTOGRAPHS

In comparative terms, whilst the Crambidae can be regarded as well known the study of the Pyralidae has been significantly limited in some subfamilies by the near absence of correctly named illustrations. For this reason, colour illustrations of adult Pyralidae, other than those easily recognised members of the subfamily Pyralinae, are now presented. The purpose of these images is to facilitate identification and so to encourage further research by others into these species in Bulgaria and elsewhere. There is no intention that these images should support any data that are presented in the text and for this reason, I have felt justified in depicting non-Bulgarian material where specimens from that country are not in a satisfactory condition. This has only been done, however, where the subspecies depicted from another country is referable to the same subspecies as Bulgarian examples and I have checked these images also to ensure that no forms or variations that are not present in Bulgaria have been included. Non-Bulgarian specimens are indicated by an asterisk (*) in the caption and the images were generously made available by EIVIND PALM. The type specimens of *Pempeliella bulgarica* SLAMKA & PLANT, *Pempeliella sororiella* ZELLER and *Phycita cryptica* PLANT & SLAMKA, as well as examples of the remaining species of *Phycita*, were photographed by FRANTISEK SLAMKA from my own collection. Remaining images were photographed by EDWARD C. PLANT and unless otherwise stated are specimens in my own collection.

Lamoria zelleri (JOANNIS, 1932) ♂

Lamoria zelleri (JOANNIS, 1932) ♀

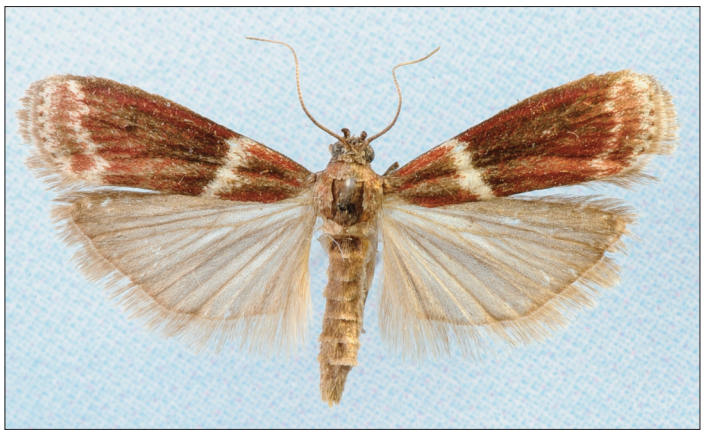
Lamoria anella ([DENIS & SCHIFFERMÜLLER], 1775) ♂

Lamoria anella ([DENIS & SCHIFFERMÜLLER], 1775) ♀

Achroia grisella (FABRICIUS, 1794) *

Galleria mellonella (LINNAEUS, 1758)

Plate 38



Cryptoblabes bistriga (HAWORTH, 1811)

Trachonitis cristella ([DENIS & SCHIFFERMÜLLER], 1775)

Salebriopsis albicilla (HERRICH-SCHÄFFER, 1849)* Photo E. PALM.

Elegia fallax (STAUDINGER, 1881) * Photo E. PALM.

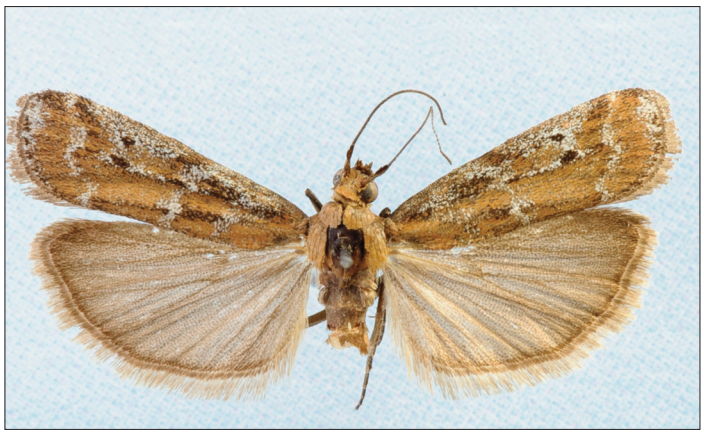
Elegia similella (ZINCKEN, 1818)

Matilella fusca (HAWORTH, 1811)

Moitrelia obductella ZELLER, 1839

Moitrelia placidella (ZERNY, 1929) comb. nov.

Plate 39



Delplanqueia dilutella ([Denis & Schiffermüller], 1775)

Delplanqueia inscriptella (Duponchel, 1836)

Delplanqueia inscriptella (Duponchel, 1836)

Delplanqueia inscriptella (Duponchel, 1836)

Pempeliella ornatella ([Denis & Schiffermüller], 1775)

Pempeliella bulgarica Slamka & Plant, 2016. Holotype ♂ Photo F. Slamka.

Pempeliella bulgarica Slamka & Plant, 2016. Paratype ♀ Photo F. Slamka.

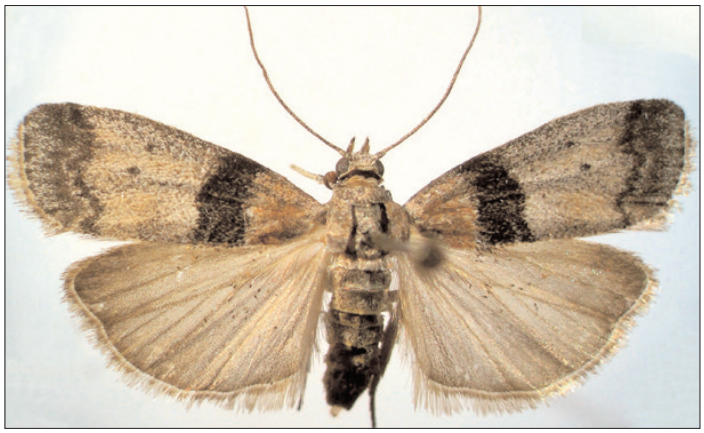
Pempeliella sororiella Zeller, 1839 ♂

Pempeliella sororiella Zeller, 1839 ♀

Catastia marginea ([Denis & Schiffermüller], 1775)

Khorassania compositella (Treitschke, 1835)

Sciota fumella (Eversmann, 1844) * Photo Eivind Palm.



Sciota rhenella (Zincken, 1818) * Photo Eivind Palm.

Sciota rhenella (Zincken, 1818)* Photo Eivind Palm.

Sciota adelphella (Fischer von Röslerstamm, 1836)* Photo E. Palm.

Denticera divisella (Duponchel, 1842)

Plate 41

Selagia argyrella argyrella ([Denis & Schiffermüller], 1775)

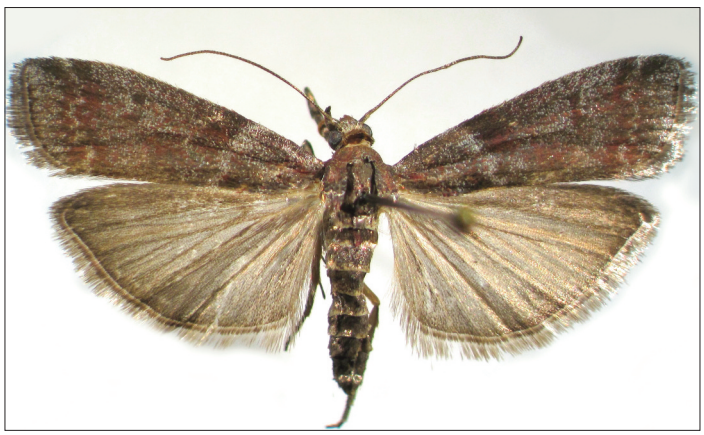
Selagia argyrella subochrella (Herrich-Schäffer, 1849)

Selagia spadicella (Hübner, 1796)

Etiella zinckenella (Treitschke, 1832)

Oncocera semirubella (Scopoli, 1763)

Oncocera amoenella (Zeller, 1848)



Laodamia faecella (Zeller, 1839) * Photo E. Palm.

Alophia combustella (Herrich-Schäffer, 1852)

Plate 42

Pempelia alpigenella (DUPONCHEL, 1836)

Pempelia brephiella (STAUDINGER, 1879) * Photo E. PALM.

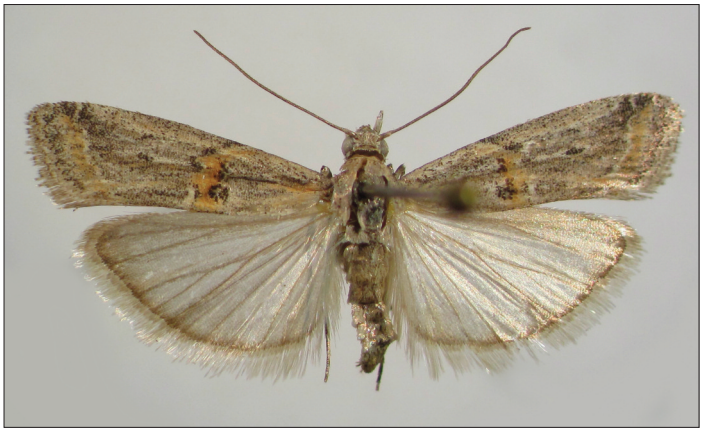
Pempelia palumbella ([DENIS & SCHIFFERMÜLLER], 1775)

Rhodophaea formosa (HAWORTH, 1811)

Psorosa albariella ZELLER, 1839

Psorosa dahliella (TREITSCHKE, 1832)

Psorosa nucleolella (MÖSCHLER, 1866)



Psorosa mediterranella AMSEL, 1953 * Photo E. PALM.

Plate 43

Dioryctria sylvestrella (RATZEBURG, 1840)

Dioryctria simplicella HEINEMANN, 1863

Dioryctria abietella ([DENIS & SCHIFFERMÜLLER], 1775)

Dioryctria mendacella (STAUDINGER, 1859) *

Phycita cryptica PLANT & SLAMKA, 2016 ♂ Photo F. SLAMKA.

Phycita cryptica PLANT & SLAMKA, 2016 ♀ Photo F. SLAMKA.

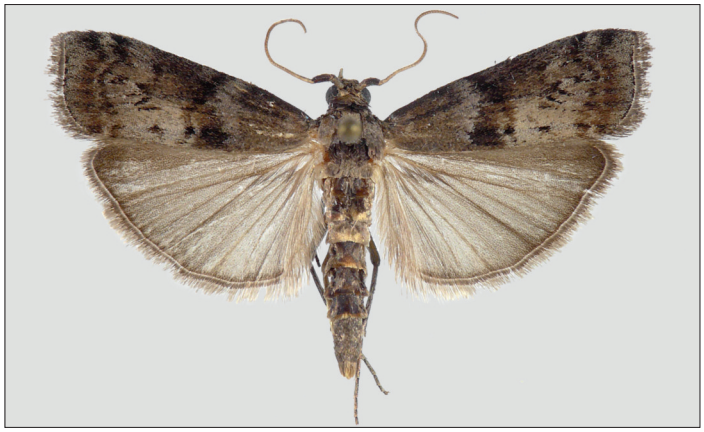
Phycita meliella (MANN, 1864) Photo F. SLAMKA.

Phycita poteriella (ZELLER, 1846) Photo F. SLAMKA.

Plate 44

Phycita poteriella (ZELLER, 1846) Photo F. SLAMKA.

Phycita torrenti AGENJO, 1963 Photo F. SLAMKA.



Phycita roborella ([DENIS & SCHIFFERMÜLLER], 1775) Photo F. SLAMKA.

Hypochalcia ahenella ([DENIS & SCHIFFERMÜLLER], 1775)

Epischnia ampliatella HEINEMANN, 1864

Epischnia prodromella (HÜBNER, 1799)

Epischnia illotella ZELLER, 1839

Lymphia chalybella (EVERSMANN, 1844)

Plate 45

Nephopterix angustella (HÜBNER, 1796)

Oxybia transversella (DUPONCHEL, 1836)

Acrobasis tumidana ([DENIS & SCHIFFERMÜLLER], 1775)

Acrobasis repandana (FABRICIUS, 1798)

Acrobasis advenella (ZINCKEN, 1818)

Acrobasis suavella (ZINCKEN, 1818)

Acrobasis legatea (HAWORTH, 1811)

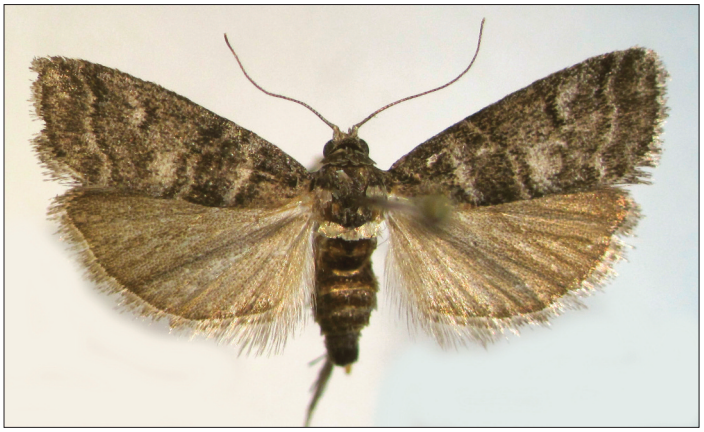
Acrobasis marmorea (HAWORTH, 1811)

Plate 46

Acrobasis sodalella ZELLER, 1848. Specimen in coll. NMNHS

Acrobasis consociella (HÜBNER, 1813)

Acrobasis fallouella (RAGONOT, 1871)



Acrobasis obtusella (HÜBNER, 1796) Photo E. PALM.

Apomyelois ceratoniae (ZELLER, 1839)

Glyptoteles leucacrinella ZELLER, 1848* Photo E. PALM.

Episcythrastis tabidella (MANN, 1864)

Eurhodope rosella (SCOPOLI, 1793)

Plate 47

Eurhodope cirrigerella (ZINCKEN, 1818). Specimen in coll. ZMUC.

Myelois circumvoluta (FOURCROY, 1785)

Pterothrixidia rufella (DUPONCHEL, 1836)

Bradyrrhoa gilveolella (TREITSCHKE, 1832)

Bradyrrhoa imperialella (RAGONOT, 1887).Specimen in coll. NMNHS.

Asalebria florella (MANN, 1862)

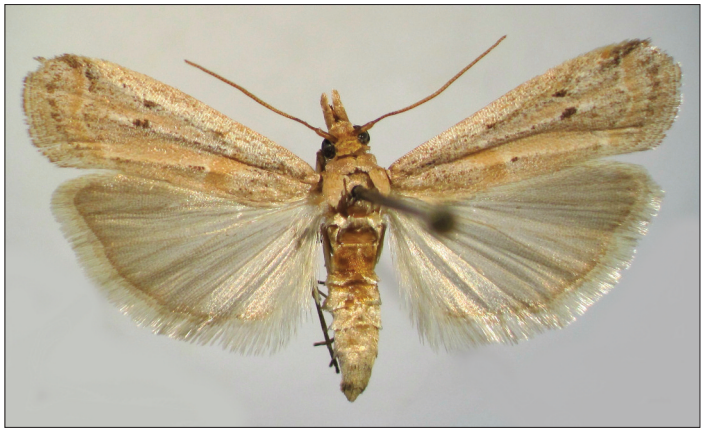
Asalebria geminella (EVERSMANN, 1844)

Megasis rippertella (ZELLER, 1839)

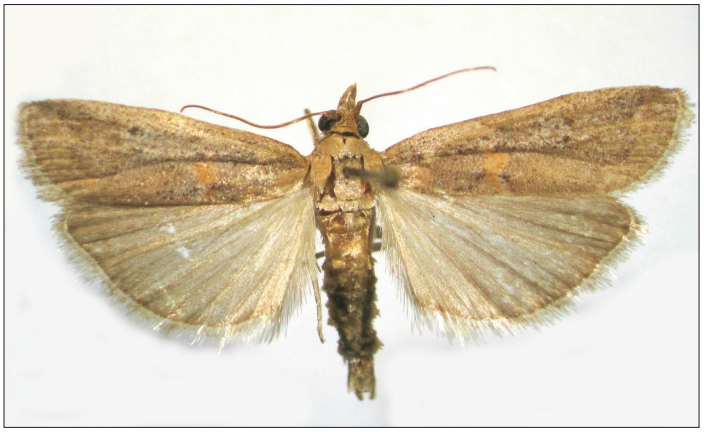
Plate 48

Isauria dilucidella (DUPONCHEL, 1836)

Asarta aethiopella (DUPONCHEL, 1836)



Gymnancyla canella ([DENIS & SCHIFFERMÜLLER], 1775) * Photo E. PALM.



Gymnancyla hornigii (LEDERER, 1852) Photo E. PALM.

Assara terebrella (ZINCKEN, 1818)

Michaeliodes friesei ROESLER, 1969

Euzophera cinerosella (ZELLER, 1839)

Euzophera fuliginosella HEINEMANN, 1865

Plate 49

Euzopherodes charlottae (REBEL, 1914)

Nyctegretis lineana (SCOPOLI, 1786)

Nyctegretis ruminella LA HARPE, 1860

Ancylosis cinnamomella (DUPONCHEL, 1836)

Ancylosis cinnamomella (DUPONCHEL, 1836)

Ancylosis sareptalla (HERRICH-SCHÄFFER, 1861)

Ancylosis sareptalla (HERRICH-SCHÄFFER, 1861)

Ancylosis oblitella (ZELLER, 1848)

Homoeosoma sinuella (FABRICIUS, 1794)

Homoeosoma nebulella ([DENIS & SCHIFFERMÜLLER], 1775)

Homoeosoma nimbella (DUPONCHEL, 1837)

Phycitodes maritima (TENGSTRÖM, 1848)

Phycitodes binaevella (HÜBNER, 1813)

Phycitodes lacteella (ROTHSCHILD, 1915)

Phycitodes inquinatella (RAGONOT, 1887)

Phycitodes saxicola (VAUGHAN, 1870)

Plate 51

Phycitodes albatella RAGONOT, 1887

Metallosticha argyrogrammos (ZELLER, 1847)

Plodia interpunctella (HÜBNER, 1813)

Ephestia kuehniella (ZELLER, 1879)

Ephestia welseriella (ZELLER, 1848)

Ephestia elutella (HÜBNER, 1796)

Ephestia woodiella RICHARDS & THOMSON, 1932

Cadra furcatella (HERRICH-SCHÄFFER, 1849)

Hypsotropa limbella Zeller, 1848

Ematheudes punctella (Treitschke, 1833)

Plate 53

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